Index to Volume 24

How to Use This Index

This index is of similar form to the Cumulative Indexes of this journal, published in November, 1939 and 1940, and is composed of two main divisions: the Author Index and the Subject Index.

The Subject Index to Volume 24 of *The Journal of the Acoustical Society of America* lists the titles of all the papers, abstracts, and patents under twelve section headings as follows: 0, General, Unclassified; 1, Acoustical Society of America; 2, Architectural Acoustics; 3, Books and Bibliographies; 4, Ear and Hearing; 5, Applied Acoustics, Instruments and Apparatus; 6, Musical Instruments and Music; 7, Noise; 8, Standards; 9, Speech and Singing; 10, Ultrasonics (Supersonics); 11, Waves and Vibrations; 12 (Changed to Section 0); and 13, Underwater Sound. Each of these sections is further divided into a considerable number of decimally numbered subjects, which are listed below under the heading, "Classification of Subjects." Each subject is divided into four parts entitled Papers, Abstracts, Subtitles, and Patents. Under Papers will be found the original titles of all the papers appearing in the journal on that subject. Under Abstracts are listed the titles of the papers presented at meetings. Since a great amount of valuable material appears in the journal in papers whose titles cannot fully describe all the subjects which the papers cover, some subtitles of papers have been indexed under the heading Subtitles. Also under Subtitles are listed Book Reviews (B.R.) and Letters to the Editor (L.E.). When subtitles covering the material did not appear in the paper, they were written; the captions of some of the figures were also included under the heading. Thus, while the Subtitles portion of the index is informal, it is hoped that it will increase the probability of finding the desired information quickly. All patents appearing in the journal are listed under the heading Patents.

References on most subjects can be located immediately by a logical use of the Classification of Subjects below. In case the reference sought is of an unusual character such that there is uncertainty as to the subject under which it might have been classified, this can usually be found quite quickly by the process of eliminating the sections and subjects under which it is quite improbable that it might have been listed. In case of doubt, a title has often been listed under a number of subjects.

Obviously, the Author Index is more convenient than the Subject Index when one knows the name of the author of the paper in which he is interested.

The References to Contemporary Papers on Acoustics are identified in each issue by the same decimal numbers listed below, and may be consulted for references in other journals than our own. In Volume 24 these references will be found on pages 92, 234, 330, 421, 548, 790.

Classification of Subjects

0. General Unclassified

1. Acoustical Society of America
- 1.1 General, Unclassified
- 1.2 Constitution and By-Laws
- 1.3 History
- 1.4 Honorary Members
- 1.5 Meetings
- 1.6 Members and Membership Lists
- 1.7 Letters to the Editor and Errata

2. Architectural Acoustics
- 2.1 General, Unclassified
- 2.2 Auditorium Design (see also 7.6)
- 2.3 Studies of Existing Auditoria
- 2.4 Sound Absorption, Theory and Methods of Measurement of (see also 2.5)
- 2.5 Materials for Sound Absorption. Values of Absorption Coefficients and Acoustical Impedances
- 2.6 Noise Reduction by Increased Room Absorption
- 2.7 Reverberation and Echoes (see also 2.3, 2.4, 2.8, 2.9, and 2.10)
- 2.8 Reverberation Measuring Instruments (see also 2.7 and 5.15)
- 2.9 Sound Transmission, Theory and Methods of Measurement of (see also 2.10)
- 2.10 Sound Insulating Structures. Values of Transmission Coefficients
- 2.11 Vibration Insulating Supports
- 2.12 Damping of Panels

3. Books and Bibliographies
- 3.1 Books and Book Reviews
- 3.2 Bibliographies
- 3.3 Patents

4. The Ear and Hearing
- 4.1 General, Unclassified
- 4.2 Anatomy and Physiology of the Ear
- 4.3 Binaural Hearing. Localization
- 4.4 Deafness (see also 5.5)
- 4.5 Instruments Relating to Hearing, and for the Testing of Hearing (see also 5.5)
- 4.6 Loudness, Threshold Determinations
- 4.7 Masking (see also 5.5)
- 4.8 Phase Effects (see also 4.3)
- 4.9 Pitch
- 4.10 Subjective Tones
- 4.11 Theories of Hearing
- 4.12 Timbre
- 4.13 Ear Acoustical Impedance

5. Applied Acoustics, Instruments and Apparatus
- 5.1 General, Unclassified
- 5.2 Amplifiers and Attenuators
- 5.3 Acoustical and Mechanical Impedance Measurement (see also 11.4)
- 5.4 Analyzers and Filters, Mechanical and Electrical. Acoustic Filters. Oscillographs (see also 5.15)
- 5.5 Audiometers (see also 4.4 and 4.5)
- 5.5.1 Broadcasting

5.6 Chronographs
5.7 Frequency Standards, Frequency Measuring and Recording Instruments
5.8 Loudspeakers, Horns (see also 5.13, 5.17, and 5.18)
5.9 Microphones, Vibration Microphones. Microphone Calibration Equipment and Techniques (see also 5.18 and 13.11t)
5.10 Navigational Instruments Using Air Sound. Altitude Measuring Instruments. Sound Ranging (for Underwater Ranging see 13.11n). Geophysical Prospecting
5.11 Oscillators, Electrical and Mechanical
5.12 Phase Meters
5.13 Public Address Systems and Sound Picture Installations
5.14 Rayleigh Disks
5.15 Sound Level Meters. Level Recorders. Sound Pressure Measurement (see also 5.4)
5.16 Sound Recording and Reproducing. General
5.16d Disk Recording (including cutting and embossing)
5.16f Film Recording (by photographic means)
5.16m Magnetic Recording
5.17 Telephone, Telephone Receivers
5.18 Thermophones (see also 5.8, 5.9, 5.17, 10.3, 13.7, and 13.11t). Transducing Principles and Structures
5.19 Tuning Forks
5.20 Tone and Wave Synthesizers
5.21 Vibration Devices. Devices for Generating or Damping Vibrations (see also 2.11 and 5.9)

See also
2.8 Reverberation Measuring Instruments
4.5 Instruments Relating to Hearing
9.6 Instruments Relating to Speech and Singing
10.3 Ultrasonic Instruments
13.11, 13.11n, and 13.11t. Instruments Relating to Underwater Sound

6. Musical Instruments and Music

6.1 General, Unclassified
6.2 Bells, Xylophones. Other Instruments Having Rigid Vibrators
6.3 Brass Wind Instruments (lip vibrated)
6.4 Drums and Other Membranophonic Instruments
6.5 Pipe Organs
6.6 Pianos and Other Keyboard Stringed Instruments
6.7 Violin Family. Stringed Instruments Except Keyboard Type
6.8 Wood Winds
6.9 Electrical Musical Instruments
6.10 Reed Organs. Accordions, Harmonicas

7. Noise

7.1 General, Unclassified
7.2 Annoyance
7.3 Audiograms of Noise
7.4 City Noise
7.5 Frequency Analyses of Noise
7.6 Noise in Buildings (see also 2.2)
7.7 Machinery Noise. Mufflers. Noise Silencers
7.8 Noise Generators (see also 13.9 Noise in Water. Ship Noise. Biological Noises)

8. Standards

8.1 General, Unclassified

9. Speech and Singing

9.1 General, Unclassified
9.2 Anatomy and Physiology of the Speech Organs
9.3 Articulation Testing. Intelligibility. Defective Speech
9.4 Frequency of Occurrence of Speech Sounds
9.5 Frequency Analyses of Speech Sounds
9.6 Instruments Relating to Speech and Singing
9.7 Speech Pitch
9.8 Speech Power. Singing Voice Power
9.9 Vibrato
9.10 Phonetics

10. Ultrasonics (Supersonics)

10.1 General, Unclassified
10.2 Light Affected by Ultrasonic Waves
10.3 Ultrasonic Instruments (see also 5.18)
10.4 Gases, Ultrasonic Velocities, Dispersion, and Absorption (see also 11.3)
10.5 Liquids, Ultrasonic Velocities, Dispersion, and Absorption (see also 13.2 and 13.3)
10.6 Solids, Ultrasonic Velocities, Dispersion, and Absorption
10.7 Physical Effects of Ultrasonic Waves
10.8 Chemical Effects of Ultrasonic Waves
10.9 Biological Effects of Ultrasonic Waves

11. Waves and Vibrations (see also 13)

11.1 General, Unclassified
11.2 Diffraction. Interference. Scattering. Reflection. Echoes. Standing Waves
11.2.1 Gross Movement of Matter by Sound or Vibration. Chladni Figures. Kundt's Striae. Sensitive Flames (see also 5.14 and 10.7)
11.3 Propagation of Sound. Absorption during Propagation. Velocity of Sound. Refraction Wavelength. Doppler Effect (see also 10.4, 10.5, 10.6, 13.2, and 13.3)
11.4 Radiation from Vibrating Objects. Acoustical Impedance. Mechanical Impedance (see also 5.3 and 13.7)
11.5 Sounds of Finite Amplitude. Distortion
11.6 Sound in Tubes
11.6.1 Sources of Sound (see also 7.8 and 11.4)
11.7 Theory of Waves and Vibrating Systems (see also 5.4)
11.8 Biological Effects of Vibration and Sound (see also 10.9)

12. (Changed to Section 0)

13. Underwater Sound

13.1 General, Unclassified
13.2 Propagation of Sound in Water. Attenuation. Fluctuation
13.3 Velocity of Sound in Water. Refraction. Doppler Effect
13.4 Reflection. Echoes. Structures for Absorbing Sound in Water
13.5 Interference. Diffraction
13.6 Scattering. Reverberation in Water
13.7 Radiation from Objects Vibrating under Water. Acoustical Impedance. Mechanical Impedance
13.8 Sound Generation by Fluid Motion, Bubbles, Turbulence, or Cavitation
13.9 Noise in Water. Ship Noise, Biological Noises
13.10 Sounds of Finite Amplitude in Water. Explosions. Distortion. Cavitation
13.11 Instruments Relating to Underwater Sound. General
13.11n Navigational Instruments Using Underwater Sound. Underwater Listening and Echo Ranging Devices. Sonar
13.11t Transducers for Underwater Sound. Transducer Calibration (see also 5.18)

Author Index to Volume 24

Numerals in boldface type refer to volume numbers. (A) designates abstracts; (B.R.) designates book review; (L.E.) designates Letter to the Editor; (T) designates title only.

Ackerman, Eugene. Resonant effects of mammalian erythrocytes in ultrasonic fields. **24:** 118(A)—1952

Aggarwal, Ram Ratan. Axially symmetric vibrations of a finite isotropic disk. I. **24:** 463—1952

—— Axially symmetric vibrations of a finite isotropic disk. II. **24:**663—1952

—— Axially symmetrical vibrations of a finite isotropic disk. **24:** 455(A)—1952

Albert, V. F. (see McGinnis, C. S.). **24:** 374—1952

American Standards Association. American standard acoustical terminology. **24:** 91(B.R.)—1952

Anderson, A. B. C. Dependence of pfeifenton (pipe tone) frequency on pipe length, orifice diameter, and gas discharge pressure. **24:** 660—1952

Anderson, D. V. Reflection of a pulse by a concave paraboloid. **24: 324**(L.E.)—1952

——, **T. D. Northwood, and C. Barnes.** Reflection of a pulse by a spherical surface. **24:** 276—1952

—— (see Barnes, C.). **24:** 229(L.E.)—1952

Anderson, John Maxwell. (see Bonzo, Joseph A.). **24:** 718—1952

Apps, David C. Use of binaural tape recording in automotive noise problems. **24:** 660—1952

—— Use of binaural tape recording in automotive noise problems. **24:** 446(A)—1952

Bach, R. L. (see London, A.). **24:** 453(A)—1952

Baerwald, Hans G. and Don A. Berlincourt. Electro-mechanical response and dielectric loss of prepolarized barium titanate ceramics under maintained electric bias. **24:** 457(A)—1952

Balashek, S. (see Davis, K. H.). **24:** 637—1952

Ballantine, H. T., Jr. (see Hueter, T. F.). **24:** 449(A)—1952

Barnes, C. and D. V. Anderson. Sound field from a pulsating sphere and the development of a tail in pulse propagation. **24:** 228(L.E.)—1952

—— (see Anderson, D. V.). **24:** 276—1952

Barney, Harold L. (see Peterson, Gordon E.). **24:** 175—1952

Barrett, R. E., M. W. Dill, R. T. Beyer, and F. L. McNamara. Ultrasonic absorption in acetate solutions. **24:** 453(A)—1952

Barthel, Romard. On sound propagation in $MgSO_4$ solutions. **24:** 313—1952

—— **and A. W. Nolle.** Precise recording ultrasonic interferometer and its application to dispersion tests in liquids. **24:** 8—1952

Baruch, J. J. and H. C. Lang. Corner loudspeaker-enclosure combination. **24:** 451(A)—1952

—— (see Rosenblith, Walter). **24:** 446(A)—1952

Bate, A. E. (see Stephens, R. W. B.). **24:** 328(B.R.)—1952

Bennett, G. S. New method for the visualization and measurement of ultrasonic fields. **24:** 470—1952

Benson, R. W. and I. J. Hirsh. Simplified audiospectrometer. **24:** 453(A)—1952

Beranek, Leo L. Unsolved military noise problems. **24:** 449(A), 769—1952

——, **S. Labate, R. H. Bolt, R. B. Newman, U. Ingard, E. T. Marsh, H. R. Mull, and J. C. Evvard.** Noise control for eight- by six-foot supersonic wind tunnel. **24:** 447(A)—1952

—— (see Rosenblith, Walter). **24:** 446(A)—1952

Berlincourt, Don A. and Frank Kulcsar. Electromechanical properties of $BaTiO_3$ compositions showing substantial shifts in phase transition points. **24:** 709—1952

—— (see Baerwald, Hans G.). **24:** 457(A)—1952

Beyer, Robert T. Acoustic relaxation in a van der Waals gas. **24:** 714—1952

—— References to contemporary papers on acoustics. **24:** 92, 234, 330, 421, 548, 790—1952

—— (see Barrett, R. E.). **24:** 453(A)—1952

—— (see McNamara, F. L.). **24:** 453(A)—1952

Biddulph, R. (see Davis, K. H.). **24:** 637—1952

Blake, F. G., Jr. Spherical wave propagation in solid media. **24:** 211—1952

—— Spherical wave radiation in solid media. **24:** 119(A)—1952

Blodgett, Hugh C. (see Jeffress, Lloyd A.). **24:** 113(A)—1952

—— (see Jeffress, Lloyd A.). **24:** 450(A)—1952

—— (see Jeffress, Lloyd A.). **24:** 523—1952

Bolt, Richard H. Aircraft engine noise problem. **24:** 116(T)—1952

——, **J. E. Young, and H. C. Lang.** Transmission of sound through thin cylindrical pipe walls. **24:** 451(A)—1952

—— (see Beranek, L. L.). **24:** 447(A)—1952

—— (see Rosenblith, Walter). **24:** 446(A)—1952

—— (see Young, J. E.). **24:** 119(T)—1952

Boner, C. P. (see Lane, R. N.). **24:** 127—1952

Bonvallet, G. L. Effect of factory room acoustical material installation. **24:** 229(L.E.)—1952

Borgnis, F. E. Acoustic radiation pressure of plane-compressional waves at oblique incidence. **24:** 468—1952

—— On the theory of the fixed path acoustic interferometer. **24:** 19—1952

Borst, John M. (see Cooper, Franklin S.). **24:** 597—1952

Botsford, J. H., R. N. Lane, and R. B. Watson. Reverberation chamber with polycylindrical walls. **24:** 742—1952

—— (see Lane, R. N.). **24:** 125—1952

Bouyoucos, John. Self-excited hydrodynamic oscillators. **24:** 454(A)—1952

Boyer, Robert A. Translational dispersion in monatomic gases. **24:** 716—1952

Brajer, E. J., Hans Jaffe, and Frank Kulcsar. Shift of the transition points in barium titanate by partial substitution. **24:** 117(A)—1952

Bray, T. L. (see Fehr, R. O.). **24:** 480—1952

Briggs, G. A. Pianos, pianists, and sonics. **24:** 91(B.R.)—1952

Brogan, F. A. (see Tonndorf, Juergen). **24:** 448(A)—1952

Bronzo, Joseph A. and John Maxwell Anderson. Effectiveness of plastic focusing lenses with high intensity ultrasonic radiation. **24:** 718—1952

Brown, R. F., J. A. Mullen, and E. L. R. Corliss. Phanglemeter. **24:** 115(A)—1952

Burkhard, Mahlon D. and E. L. R. Corliss. Observations on the acoustic impedance of calibrating couplers and ears. **24:** 114(A)—1952

—— (see Nyborg, W. L.). **24:** 293—1952

Byrnes, Francis X. Effect of tube noise on the equivalent noise pressure of transducer systems. **24:** 452(A)—1952

Callaway, D. B. and L. G. Ramer. Use of perforated facings in designing low frequency resonant absorbers. **24:** 309—1952

——, **F. G. Tyzzer, and H. C. Hardy.** Instrumentation and techniques for evaluation of noise reducing components in piping systems. **24:** 117(A)—1952

——, **F. G. Tyzzer, and H. C. Hardy.** Techniques for valuation of noise-reducing piping components. **24:** 725—1952

Camp, Leon. Performance characteristics under water of plane arrays of barium titanate transducers. **24:** 450(A)—1952

Carlisle, Richard W. (see Hector, L. Grant). **24**: 448(A)—1952
Carter, A. H. and A. O. Williams, Jr. New expansion for the velocity potential of a piston source. **24**: 230(L.E.)—1952
Codier, E. (see Rabinow, J.). **24**: 216—1952
Cohen, Hirsh (see Laird, Donald T.). **24**: 46—1952
Condon, E. U. The Atom. **24**: 119(T)—1952
Cook, R. F. (see Rogers, O. R.). **24**: 446(A)—1952
Cook, Richard K. Unsolved problems in architectural acoustics. **24**: 449(T)—1952
Cooper, Franklin S. Pierre C. Delattre, Alvin M. Liberman, John M. Borst, and Louis J. Gerstman. Some experiments on the perception of synthetic speech sounds. **24**: 597—1952
—— (see Liberman, Alvin M.). **24**: 114(A)—1952
Corliss, E. L. R. Method for studying speech communication systems. **24**: 449(A)—1952
—— (see Brown, R. F.). **24**: 115(A)—1952
—— (see Burkhard, Mahlon D.). **24**: 114(A)—1952
Cultural Division of the French Embassy. French bibliographical digest: science, physics. **24**: 91(B.R.)—1952
Curtis, K. K. and L. N. Hadley. Acoustical interference filters. **24**: 721—1952

Daniels, Fred B. Acoustical energy generated by the ocean waves. **24**: 83(L.E.)—1952
Darrow, K. K. Physics as science and art. **24**: 119(T)—1952
Davenport, E. W. (see Webster, J. C.). **24**: 147—1952
Davenport, Wilbur B., Jr. Experimental study of speech-wave probability distributions. **24**: 390—1952
Davids, N., E. G. Thurston, and R. E. Mueser. Design of optimum directional acoustic arrays. **24**: 50—1952
Davis, H. (see Tasaki, I.). **24**: 447(A)—1952
—— (see Tasaki, I.). **24**: 502—1952
Davis, K., H. R. Biddulph, and S. Balashek. Automatic recognition of spoken digits. **24**: 637—1952
Dean, Neal J. (see Hector, L. Grant). **24**: 448(A)—1952
Deatherage, Bruce. (see Jeffress, Lloyd A.). **24**: 113(A)—1952
—— (see Jeffress, Lloyd A.). **24**: 450(A)—1952
—— (see Jeffress, Lloyd A.). **24**: 523—1952
Delattre, Pierre C. (see Cooper, Franklin S.). **24**: 597—1952
—— (see Liberman, Alvin M.). **24**: 114(A)—1952
de Vries, H. L. Brownian motion and the transmission of energy in the cochlea. **24**: 527—1952
Dietrick, Harry (see Yeager, Ernest). **24**: 117(A)—1952
Dill, M. W. (see Barrett, R. E.). **24**: 453(A)—1952
Dozois, E. (see Hueter, T. F.). **24**: 85(L.E.)—1952
Dunbar, James Y. and C. J. LeBel. Reverberation by ultra-speed recording. **24**: 115(A)—1952
Dyer, Ira. Sound scattering by fluid cylinders. **24**: 454(A)—1952

Elrod, Harold, Jr. More rapidly-convergent expansion for the velocity potential of a piston source. **24**: 325(L.E.)—1952
Ener, C. and J. C. Hubbard. Ultrasonic propagation in dry CO_2-free air. **24**: 458(A)—1952
——, **A. F. Gabrysh, and J. C. Hubbard.** Ultrasonic velocity, dispersion, and absorption in dry, CO_2-free air. **24**: 474—1952
Epstein, D. (see London, A.). **24**: 453(A)—1952
Erdman, Donald C. Automatic ultrasonic flaw plotting. **24**: 113(A)—1952
Ernst, Paul J. and Charles W. Hoffman. New methods of indirect ultrasonoscopy and ultrasonography. **24**: 113(A)—1952
—— **and Charles W. Hoffman.** New methods of ultrasonoscopy and ultrasonography. **24**: 87(L.E.)—1952
—— **and Charles W. Hoffman.** New methods of ultrasonoscopy and ultrasonography. **24**: 207—1952
Eshbach, Ovid W. Handbook of engineering fundamentals. **24**: 548(B.R.)—1952
Evvard, J. C. (see Beranek, L. L.). **24**: 447(A)—1952

Faran, James J., Jr. Simple electronic correlator. **24**: 452(A)—1952
—— **and Robert Hills, Jr.** Experimental comparison of square-law and correlation detectors. **24**: 452(A)—1952
—— (see Hills, Robert, Jr.). **24**: 452(A)—1952
Fay, R. D. Wave propagation in liquid-filled cylinders. **24**: 454(A)—1952
—— Waves in liquid-filled cylinders. **24**: 459—1952
Fehr, Robert O. Unsolved noise problems in the aircraft industry. **24**: 449(T), 772—1952
—— **and Richard J. Wells.** Acoustic design of aircraft gas turbine test cells. **24**: 116(T)—1952
——, **R. J. Wells, and T. L. Bray.** Acoustic design of aircraft gas turbine test cells. **24**: 480—1952
Fermi, Enrico. The nucleus. **24**: 119(T)—1952
Fernández, César. Dimensions of the cochlea (guinea pig). **24**: 519—1952
Ferris, Horace G. Free vibrations of a gas contained within a spherical vessel. **24**: 57—1952
Fischer-Jørgensen, Eli. Phonetic basis for identification of phonemic elements. **24**: 611—1952
Fletcher, Harvey. Acoustics. **24**: 119(T)—1952
—— Dynamics of the middle ear and its relation to the acuity of hearing. **24**: 129—1952
—— Perception of speech by deafened listeners and its relation to the design of hearing aids. **24**: 448(A)—1952
—— Perception of speech sounds by deafened persons. **24**: 490—1952
Flodman, L. J. (see Kettler, A. H.). **24**: 450(A)—1952
Flottorp, Gordon. Effect of different types of electrodes in electrophonic hearing. **24**: 447(A)—1952
Foch, Adrien. Acoustique (Acoustics). **24**: 328(B.R.)—1952
Franke, Ernst K. Impedance of the human mastoid. **24**: 410—1952
—— Mechanical impedance of the human mastoid and its relation to the calibration of bone conduction transducers. **24**: 114(A)—1952
——**Henning E. von Gierke, Frederick M. Grossman, and Wolf W. von Wittern.** Jaw motions relative to the skull and their influence on hearing by bone conduction. **24**: 142—1952
Frazier, T. V. Pitch changes produced by bone-transmitted thermal noise or pure tone. **24**: 114(A)—1952
—— (see Watson, Norman). **24**: 114(A)—1952
Frick, F. C. and W. H. Sumby. Control tower language. **24**: 595—1952
Frings, Hubert and Mable Frings. Acoustical determinants of audiogenic seizures in laboratory mice. **24**: 163—1952
Frings, Mable (see Frings, Hubert). **24**: 163—1952
Fry, William J. Mechanism of acoustic absorption in tissue. **24**: 412—1952

Gabrysh, A. F. (see Ener, C.). **24**: 474—1952
Gannon, W. J. (see von Gierke, H. E.). **24**: 116(A)—1952
—— (see von Gierke, H. E.). **24**: 169—1952
Garner, W. R. Some statistical aspects of half-loudness judgments. **24**: 153—1952
Garvin, W. W. Pulse propagation in a nonhomogeneous medium. **24**: 119(A)—1952
Gerstman, Louis J. (see Cooper, Franklin S.). **24**: 597—1952
Glasscock, Wilford R. (see Holter, Norman J.) **24**: 682—1952
Glorig, Aram and Robert R. Wilke. New automatic screening audiometer. **24**: 450(A)—1952
Goldman, D. E. (see Richards, J. R.). **24**: 113(A)—1952
Graham, M. L. (see Kettler, A. H.) **24**: 450(A)—1952
Gross, Ervin E. (see Peterson, Arnold). 24: 115(A)—1952

Grossman, Frederick M. (see Franke, Ernst K.). **24:** 142—1952
Guelke, R. and H. Helm. Anomalous behavior of the threshold of hearing in relation to the equal loudness contours. **24:** 317—1952
Guptill, E. W. Exact solution of the acoustical field near a circular transducer. **24:** 784 (L. E.)—1952
Gurin, H. M. Microphone technique—TV. **24:** 455(T)—1952

Hadley, L. N. (see Curtis, K. K.). **24:** 721—1952
Hall, L. H. Attenuation of sound resulting from ionic relaxation. **24:** 704—1952
Hansen, R. G. (see von Gierke, H. E.). **24:** 116(A)—1952
—— (see von Gierke, H. E.). **24:** 169—1952
Hardy, Howard C. Design characteristics for noise control of jet engine test cells. **24:** 116(T)—1952
—— Design characteristics for noise control of jet engine test cells. **24:** 185—1952
—— Preliminary estimate of a hearing damage risk criterion for steady-state noise. **24:** 446(A)—1952
—— Tentative estimate of a hearing damage risk criterion for steady-state noise. **24:** 756—1952
—— Unsolved basic physical research problems in the field of noise. **24:** 449(T), 767—1952
—— **and F. G. Tyzzer.** Experimentation on the theory of the reverberation method of measuring acoustical absorption. **24:** 115(A)—1952
—— (see Callaway, D. B.). **24:** 117(A)—1952
—— (see Callaway, D. B.). **24:** 725—1952
—— (see Potter, S. M.). **24:** 116(A)—1952
Harris, Cyril M. and Charles T. Molloy. Theory of sound absorptive materials. **24:** 1—1952
Harris, J. Donald. Pitch discrimination. **24:** 750—1952
—— Remarks on the determination of a differential threshold by the so-called ABX technique. **24:** 417(L.E.)—1952
Harrison, Mark. Experimental study of single bubble cavitation noise. **24:** 454(A), 776—1952
—— **and A. O. Sykes.** Useful theorem for the testing of isolation mounts. **24:** 116(A)—1952
——, **Alan O. Sykes, and M. Martin.** Wave effects in isolation mounts. **24:** 62—1952
——, **A. O. Sykes, and Paul G. Marcotte.** Reciprocity calibration of piezoelectric accelerometers. **24:** 384—1952
—— (see Sykes, A. O.). **24:** 117(A)—1952
Hartmann, Jul. and Erik Trudso. Synchronization of air-jet generators, with an appendix on the stem generator. **24:** 233(B.R.)—1952
—— **and F. Larris.** Air-jet generator as a means for setting up waves in a liquid medium. **24:** 233(B.R.)—1952
Haskins, James F. Resonance in barium titanate tubes. **24:** 117(A)—1952
Hawkins, Joseph E., Jr. Antibiotics and the cochlea. **24:** 448(A)—1952
Hector, L. Grant, Harry A. Pearson, Neal J. Dean, and Richard W. Carlisle. Recent advances in hearing aids. **24:** 448(A)—1952
Held, Richard. (see Licklider, J. C. R.). **24:** 114(A)—1952
Heller, G. S. On the propagation of acoustic discontinuities in a moving inhomogeneous fluid. **24:** 456(A)—1952
—— Reflection from an inhomogeneous medium. **24:** 118(A)—1952
Heller, Ralph. Transverse vibrations of uniform thin bars. **24:** 273—1952
Helm, H. (see Guelke, R.). **24:** 317—1952
Hemond, Conrad (see Mawardi, Osman). **24:** 446(A)—1952
Hills, Robert, Jr., and James J. Faran, Jr. Analytical comparison of square-law and correlation detectors. **24:** 452(A)—1952
—— (see Faran, James, Jr.). **24:** 452(A)
Hirschorn, Martin. Description of a new swaging machine silencer. 24: 117(A)—1952
Hirsh, I. J. and W. D. Ward. Recovery of the auditory threshold after strong acoustic stimulation. **24:** 131—1952
—— (see Benson, R. W.). **24:** 453(A)—1952
Hoffman, Charles W. (see Ernst, Paul J.). **24:** 87(L.E.)—1952
—— (see Ernst, Paul J.). **24:** 113(A)—1952
—— (see Ernst, Paul J.). **24:** 207—1952
Holter, Norman J. and Wilford R. Glasscock. Vibrations of evaporating liquid drops. **24:** 682—1952
Hoople, Gordon D. Unsolved problems relating to hearing loss in industry. **24:** 449(T), 765—1952
Hovorka, Frank (see Yeager, Ernest). **24:** 117(A)—1952
Howard, Tom. Sound problems encountered in field TV broadcasting. **24:** 455(T)—1952
Hubbard, J. C. Diffraction and reflection as sources of error in ultrasonic measurements. **24:** 458—1952
—— (see Ener, C.). **24:** 458(A)—1952
—— (see Ener, C.). **24:** 474—1952
Hudson, George E. (see Neuringer, Joseph L.). **24:** 667—1952
Hueter, T. F. and E. Dozois. Frequency response of barium titanate transducers. **24:** 85(L.E.)—1952
——, **H. T. Ballantine, Jr., and D. Kyrazis.** Ultrasonic attenuation in human skull bone. **24:** 449(A)—1952
Huggins, W. H. Phase-principle for complex-frequency analysis and its implications in auditory theory. **24:** 582—1952

Ingård, U. (see Beranek, L. L.). **24:** 447(A)—1952

Jaffe, Hans (see Brajer, E. J.). **24:** 117(A)—1952
Jeffress, Lloyd A., Hugh C. Blodgett, and Bruce H. Deatherage. Masking of tones by white noise as a function of the interaural phases of both components. I. 500 cycles. **24:** 523—1952
——, **Hugh C. Blodgett, and Bruce Deatherage.** Masking of tones by white noise as a function of the interaural phases of both components. **24:** 113(A)—1952
——, **Hugh C. Blodgett, and Bruce H. Deatherage.** Masking of tones by white noise as a function of the interaural time displacement of the noise. **24:** 450(A)—1952
Jennings, Vernon A. (see Kenworthy, Ray W.). **24:** 60—1952
—— (see Kenworthy, Ray W.) **24:** 118(A)—1952
Johnson, Wallace E. (see Swenson, George W., Jr.). **24:** 84(L.E.)—1952
Junger, Miguel C. Radiation loading of cylindrical and spherical surfaces. **24:** 288—1952
—— Sound scattering by thin elastic shells. **24:** 366—1952
—— Sound scattering by thin elastic shells. **24:** 455(A)—1952

Kendig, Paul M. (see Laird, Donald T.). **24:** 29—1952
Kennedy, William B. (see Richardson, John M.). **24:** 731—1952
Kent, E. L. Electronic music box. **24:** 116(A)—1952
Kenworthy, Ray W. and Vernon A. Jennings. Modes of vibration of a semi-flexible rod under tension. **24:** 60—1952
—— **and Vernon A. Jennings.** Modes of vibration of semi-flexible rod under tension. **24:** 118(A)—1952
Kettler, A. H., L. J. Flodman, D. W. Martin, and M. L. Graham. High intelligibility interphone system for use in military aircraft. **24:** 450(A)—1952
Kock, Winston E. Problem of selective voice control. **24:** 625—1952
—— **and R. L. Miller.** Dynamic spectrograms of speech. **24:** 783(L.E.)—1952
Kodaras, Michael. Sound and construction problem. **24:** 455(T)—1952
Kornhauser, E. T. Solutions of the generalized eikonal equation for moving fluids. **24:** 456(A)—1952

Kulcsar, Frank (see Berlincourt, Don A.). **24**: 709—1952
—— (see Brajer, E. J.). **24**: 117(A)—1952
Kyrazis, D. (see Hueter, T. F.). **24**: 449(A)—1952

Labate, Samuel. Some data on the performance of sound attenuating treatments. **24**: 447(A)—1952
—— (see Beranek, L. L.). **24**: 447(A)—1952
—— (see Rosenblith, Walter). **24**: 446(A)—1952
Lagemann, Robert T. Use of glass parts in ultrasonic interferometers. **24**: 86(L.E.)—1952
Laird, Donald T. and Hirsh Cohen. Directionality patterns for acoustic radiation from a source on a rigid cylinder. **24**: 46—1952
—— **and Paul M. Kendig.** Attenuation of sound in water containing air bubbles. **24**: 29—1952
Land, Edwin H. Optics. **24**: 119(T)—1952
Lane, R. N. and James Botsford. Total sound absorption for upholstered theater chairs with audience. **24**: 125—1952
——, **Frank Seay, and C. P. Boner.** Inexpensive acoustic treatment for gymnasiums, civic coliseums, and similar structures. **24**: 127—1952
—— (see Botsford, J. H.). **24**: 742—1952
Lang, H. C. (see Baruch, J. J.). **24**: 451(A)—1952
—— (see Bolt, R. H.). **24**: 451(A)—1952
Larris, F. (see Hartmann, Jul.). **24**: 233(B.R.)—1952
LeBel, C. J. (see Dunbar, James Y.). **24**: 115(A)—1952
Le Corbeiller, P. and Ying-Wa Yeung. Duality in mechanics. **24**: 451(A)—1952
—— **and Ying-Wa Yeung.** Duality in mechanics. **24**: 643—1952
Legouix, J.-P. (see Tasaki, I.). **24**: 447(A)—1952
—— (see Tasaki, I.) **24**: 502—1952
Lemmerman, Richard D. Noise control in aircraft engine testing. **24**: 116(A)—1952
Leonard, R. W. Resistively terminated probe microphone. **24**: 113(A)—1952
—— **and I. Rudnick.** Acoustic instrumentation for high intensities. **24**: 451(A)—1952
—— (see Rudnick, Isadore). **24**: 456(A)—1952
Liberman, Alvin M., Pierre Delattre, and Franklin S. Cooper. Study of one factor in the perception of the unvoiced stop consonants. **24**: 114(A)—1952
—— (see Cooper, Franklin S.). **24**: 597—1952
Licklider, J. C. R. On the process of speech perception. **24**: 590—1952
—— **and Richard Held.** Effects of various types of nonlinear distortion upon the intelligibility of speech. **24**: 114(A)—1952
Lindsay, R. B. Concepts and methods of theoretical physics. **24**: 787(B.R.)—1952
Lloyd, Ll. S. Music and sound. **24**: 233(B.R.)—1952
London, A., A. W. Orlacchio, R. L. Bach, and D. Epstein. Propagation of sound through solids. **24**: 453(A)—1952

Machlup, Stefan. Theoretical model for sound scattering by marine crustaceans. **24**: 290—1952
Makinson, K. Rachel. Transmission of ultrasonic waves through a thin solid plate at the critical angle for the dilatational wave. **24**: 202—1952
Marcotte, Paul G. (see Harrison, Mark). **24**: 384—1952
Marsh, E. T. (see Beranek, L. L.). **24**: 447(A)—1952
Martin, Daniel W. Do you auralize? **24**: 416(L.E.)—1952
Martin, D. W. (see Kettler, A. H.). **24**: 450(A)—1952
Martin, M. (see Harrison, Mark). **24**: 62—1952
Mason, W. P. Method for measuring normal and tangential forces and accelerations with barium titanate ceramics. **24**: 452(A)—1952
Mawardi, Osman K. Noise characteristics from axial flow compressors. **24**: 446(A)—1952
—— **and Conrad Hemond.** Propagation of sound in a water spray muffler. **24**: 446(A)—1952
May, Everett G. (see Olson, Harry F.). **24**: 451(A)—1952
McGinnis, C. S. and V. F. Albert. Multiple Helmholz resonators. **24**: 374—1952
McGrath, J. W. Note on Beranek's theory of the acoustic impedance of porous materials. **24**: 305—1952
McNamara, F. L. and R. T. Beyer. Measurement of the ultrasonic absorption coefficient by a modified radiation pressure method. **24**: 453(A)—1952
—— (see Barrett, R. E.). **24**: 453(A)—1952
McSkimin, H. J. Measurement of dynamic shear viscosity and stiffness of viscous liquids by means of traveling torsional waves. **24**: 355—1952
—— Measurement of the shear impedance of viscous liquids by means of traveling torsional waves. **24**: 117(A)—1952
Meeker, Willard F. (see Slaymaker, Frank H.). **24**: 451(A)—1952
Mellen, Robert H. Thermal-noise limit in the detection of underwater acoustic signals. **24**: 478—1952
Meyer, Max F. How we hear and how tones make music. **24**: 329, 787(B.R.)—1952
Mifsud, J. F. (see Nolle, A. W.). **24**: 118(A)—1952
Miles, John W. On acoustic diffraction cross sections for oblique incidence. **24**: 324(L.E.)—1952
Miller, George A. Language and communication. **24**: 233 (B.R.)—1952
Miller, P. H. (see Webster, J. C.). **24**: 147—1952
Miller, R. L. (See Kock, Winston E.) **24**: 783(L.E.)—1952
Mintz, F. and F. G. Tyzzer. Loudness chart for octave-band data on complex sounds. **24**: 80—1952
Mintzer, David. Discussion of the paper by H. B. Miller on the growth and decay of sound. **24**: 86(L.E.)—1952
—— Intensity fluctuations of radiation propagated in a randomly-inhomogeneous medium. **24**: 457(A)—1952
Mitchell, F. H. Fundamentals of electronics. **24**: 91(B.R.)—1952
Molloy, Charles T. (see Harris, Cyril M.). **24**: 1—1952
Monroe, Robert. CBS TV studio intercommunication facilities. **24**: 455(A)—1952
Morrow, Charles T. Mechanical shock tester for instruments and electronic apparatus. **24**: 26—1952
—— Time constant meter for tuning forks and other high Q devices. **24**: 40—1952
Morse, R. W. Acoustic propagation in granular media. **24**: 696—1952
—— Sound propagation in granular media. **24**: 456(A)—1952
Mueser, R. E. (see Davids, N.). **24**: 50—1952
Mull, H. R. (see Beranek, L. L.). **24**: 447(A)—1952
Mullen, J. A. (see Brown, R. F.). **24**: 115(A)—1952
Munson, W. A. and Francis M. Wiener. In search of the missing 6 db. **24**: 449(A)—1952
—— **and Francis M. Wiener.** In search of the missing 6 db. **24**: 498—1952

Neuringer, Joseph L. and George E. Hudson. Investigation of sound vibrations in a tube containing a heat source. **24**: 667—1952
Newman, Robert B. Acoustics design of the large Council chambers, permanent headquarters of the United Nations, New York. **24**: 450(A)—1952
—— (see Beranek, L. L.). **24**: 447(A)—1952
—— (see Rosenblith, Walter). **24**: 446(A)—1952
Niven, W. D. The scientific papers of James Clerk Maxwell. **24**: 789(B.R.)—1952
Nixon, George. Outline of typical sound broadcasting and TV broadcasting system. **24**: 455(T)—1952
Nixon, John D., Richard A. Rhodes II, and A. O. Williams, Jr. Surface vibration patterns of ultrasonic radiators. III. **24**: 457(A)—1952
Nolle, A. W. and J. F. Mifsud. Use of a differential phase-delay method for study of ultrasonic-wave propagation in swollen rubberlike materials. **24**: 118(A)—1952
—— (see Barthel, Romard). **24**: 8—1952
Northwood, T. D. (see Anderson, D. V.). **24**: 276—1952

Nyborg, Wesley L. Steady torques and streaming associated with crossed plane waves. **24**: 119(A)—1952
——, **M. D. Burkhard, and H. K. Schilling.** Acoustical characteristics of jet-edge and jet-edge-resonator systems. **24**: 293—1952

Olson, Harry F. Musical engineering. **24**: 420(B.R.)—1952
——, **John Preston, and Everett G. May.** Compound direct radiator loudspeaker. **24**: 451(A)—1952
Orlacchio, A. W. (see London, A.). **24**: 453(A)—1952
Özdoğan, Belkis. Natural vibrations of rectangular quartz plates and determination of the dispersion of sound in ethyl ether. **24**: 541(L.E.)—1952

Parker, J. G. and R. M. Stavseth. Absorption of sound in argon, nitrogen, and oxygen at low pressures. **24**: 456(A)—1952
Parkin, P. H. American and European standard methods for measurement of sound transmission in buildings. **24**: 542(L.E.)—1952
Parrack, Horace O. (see von Gierke, H. E.). **24**: 116(A)—1952
—— (see von Gierke, H. E.). **24**: 169—1952
Pearson, Harry A. (see Hector, L. Grant). **24**: 448(A)—1952
Pétermann, L. New photographic method of detecting ultrasonic radiation. **24**: 416(L.E.)—1952
Peterson, Arnold and Ervin E. Gross. Sound-level meter and sound-survey meter. **24**: 115(A)—1952
Peterson, Gordon E. Information bearing elements of speech. **24**: 629—1952
—— **and Harold L. Barney.** Control methods used in a study of the vowels. **24**: 175—1952
Pike, Kenneth L. Operational phonemics in reference to linguistic relativity. **24**: 618—1952
Pollack, Irwin. Comfortable listening levels for pure tones in quiet and noise. **24**: 158—1952
—— Information of elementary auditory displays. **24**: 449(A)—1952
—— Information of elementary auditory displays. **24**: 745—1952
—— Loudness of bands of noise. **24**: 533—1952
—— On the effect of frequency and amplitude distortion on the intelligibility of speech in noise. **24**: 538—1952
—— On the measurement of the loudness of speech. **24**: 323(L.E.)—1952
Potter, S. M. and H. C. Hardy. Quieting of the jet engine testing facilities in the Willgoos Turbine Laboratory. **24**: 116(A)—1952
Preston, John (see Olson, Harry F.). **24**: 451(A)—1952

Rabinow, J. and E. Codier. Phonograph needle drag distortion. **24**: 216—1952
Ramer, L. G. (see Callaway, D. B.). **24**: 309—1952
Randall, Robert H. Introduction to acoustics. **24**: 233(B.R.)—1952
Rhodes, Richard A., II. (see Nixon, John D.). **24**: 457(A)—1952
Richards, J. R. and D. E. Goldman. High frequency, wide range acoustic interferometer for biological work. **24**: 113(A)—1952
Richardson, E. G. Ultrasonic physics. **24**: 420(B.R.)—1952
Richardson, John M. and William B. Kennedy. Atmospheric winds and temperatures to 50-kilometers altitude as determined by acoustical propagation studies. **24**: 731—1952
Robbins, Joseph G. Acoustic significance of the amplitude and phase of harmonics present in a source of sound in a room. **24**: 380—1952
Robey, Donald H. Accurate prediction of resonant frequency of water loaded transducers. **24**: 113(A)—1952
—— Variable resonant frequency crystal transducer. **24**: 113(A)—1952
Rogers, O. R. and R. F. Cook. Aerodynamic noise and the estimation of noise in aircraft. **24**: 446(A)—1952
Rosato, Frank J. Analysis of magnetostrictive and piezoelectric transducers by the mode impedance method. **24**: 457(A)—1952
Rosenberg, M. D. Gaseous cavitation in liquids. **24**: 454(A)—1952
Rosenblith, W. A. and K. N. Stevens. Pitch discrimination data from two psychophysical methods. **24**: 449(A)—1952
——, **Leo L. Berenek, Richard H. Bolt, Robert B. Newman, Jordan J. Baruch, and Samuel Labate.** Tentative criteria for noise control design. **24**: 446(A)—1952
Rudnick, Isadore and Robert W. Leonard. Attenuation of repeated shock waves. **24**: 456(A)—1952
—— (see Leonard, R. W.). **24**: 451(A)—1952

Sabine, Paul E. Acoustics of the remodeled House and Senate Chambers of the national Capitol. **24**: 121—1952
—— Acoustics of the remodeled legislative chambers of the national Capitol. **24**: 115(A)—1952
Saunders, Frank (see Yeager, Ernest). **24**: 117(A)—1952
Schilling, H. K. (see Nyborg, W. L.). **24**: 293—1952
Scott, H. H. (see von Recklinghausen, D.). **24**: 453(A)—1952
Schreiber, O. W. Some sounds from marine life in the Hawaiian area. **24**: 116(A)—1952
Seay, Frank (see Lane, R. N.). **24**: 127—1952
Shaw, E. A. G. Some vibration patterns of thick barium titanate disks. **24**: 457(A)—1952
Sherwin, C. W. Signal detection in hearing. **24**: 448(A)—1952
Sherwood, R. M. (see Young, R. W.). **24**: 541—1952
Shimbo, Sotoshi (see Wada, Yasaku). **24**: 199—1952
Slater, J. C. Solid state. **24**: 119(T)—1952
Slaymaker, Frank H. and Willard F. Meeker. Measurements of the tonal characteristics of carillon bells. **24**: 451(A)—1952
Smith, P. W., Jr. Precise measurement of the velocity of sound. **24**: 455(A)—1952
—— Systematic errors in indirect measurements of the velocity of sound. **24**: 687—1952
Sneddon, Iran N. Fourier transforms. **24**: 328(B.R.)—1952
Stavseth, R. M. (see Parker, J. G.). **24**: 456(A)—1952
Stenzel, H. Remarks on a paper entitled "Calculation of the directivity index for various types of radiators." **24**: 417(L.E)—1952
Stephens, R. W. B. and A. E. Bate. Wave motion and sound. **24**: 328(B.R.)—1952
Stetson, R. H. Motor phonetics, a study of speech movements in action. **24**: 329(B.R.)—1952
Stevens, K. N. Frequency discrimination for damped waves. **24**: 76—1952
—— Preception of vowel formants. **24**: 450(A)—1952
—— (see Rosenblith, W. A.). **24**: 449(A)—1952
Stewart, Ellen S. and James L. Stewart. Rotational dispersion in the velocity, attenuation, and reflection of ultrasonic waves in hydrogen and deuterium. **24**: 194—1952
—— (see Stewart, James L.). **24**: 22—1952
Stewart, James L. and Ellen S. Stewart. Recording ultrasonic interferometer and its alignment. **24**: 22—1952
—— (see Stewart, Ellen S.) **24**: 194—1952
Sumby, W. H. (see Frick, F. C.). **24**: 595—1952
Sumner, William Leslie. The organ. **24**: 788(B.R.)—1952
Swenson, George W., Jr., and Wallace E. Johnson. Radiation impedance of a rigid square piston in an infinite baffle. **24**: 84(L.E.)—1952
Sykes, A. O. and Mark Harrison. On the use of metallic noise isolation mounts. **24**: 117(A)—1952
—— (see Harrison, Mark). **24**: 62—1952
—— (see Harrison, Mark). **24**: 116(A)—1952
—— (see Harrison, Mark). **24**: 384—1952

Tanner, R. H. and G. B. Thompson. Avoidance of crosstalk in large audio systems using unshielded wire. **24**: 115(A)—1952

Tasaki, I., H. Davis, and J.-P. Legouix. Space-time pattern of the cochlear microphonics (guinea pig), as recorded by differential electrodes. **24**: 502—1952
——, **H. Davis, and J.-P. Legouix.** Space-time patterns of the cochlear microphonic in guinea pig. **24**: 447(A)—1952
Taylor, Hawley O. Tube method of measuring sound absorption. **24**: 701—1952
Thaler, William John. Absorption and dispersion of sound in oxygen as a function of the frequency-pressure ratio. **24**: 15—1952
Thompson, G. B. (see Tanner, R. H.). **24**: 115(A)—1952
Thompson, P. O. (see Webster, J. C.). **24**: 147—1952
Thurston, Edward G. Theoretical sensitivity of a transversely loaded, circular bimorph transducer. **24**: 457(A)—1952
—— Theoretical sensitivity of a transversely loaded, circular bimorph transducer. **24**: 656—1952
—— (see Davids, N.). **24**: 50—1952
Thurston, George B. Apparatus for absolute measurement of analogous impedance of acoustic elements. **24**: 649—1952
—— Periodic fluid flow through circular tubes. **24**: 653—1952
Tonndorf, Juergen and F. A. Brogan. Noise audiometry. **24**: 448(A)—1952
Tottenham Public Libraries and Museum. Electronic musical instruments, a bibliography. **24**: 420(B.R.)—1952
Trudso, Erik (see Hartmann, Jul.). **24**: 233(B.R.)—1952
Twaddell, W. F. Phonemes and allophones in speech analysis. **24**: 607—1952
Twersky, Vic. Mechanical sound sources for obstacle perception by audition. **24**: 451(A)—1952
—— Multiple scattering by two parallel cylinders. **24**: 119(A)—1952
—— Multiple scattering of radiation by an arbitrary configuration of parallel cylinders. **24**: 42—1952
Tyzzer, F. G. (see Callaway, D. B.). **24**: 117(A)—1952
—— (see Callaway, D. B.). **24**: 725—1952
—— (see Hardy, H. C.). **24**: 115(A)—1952
—— (see Mintz, F.). **24**: 80—1952

Urick, R. J. Experimental study of sound reflection from a river bottom. **24**: 455(A)—1952

v. Békésy, Georg. D C resting potentials inside the cochlear partition. **24**: 72—1952
—— Gross localization of the place of origin of the cochlear microphonics. **24**: 399—1952
Vilbig, Friedrich. Frequency-band multiplication or division and time-expansion or compression by means of a string filter. **24**: 33—1952
—— Instantaneous frequency band multiplication, division, and analysis. **24**: 113(A)—1952
Vincent, Emil T. Audio design in TV studio systems. **24**: 455(T)—1952
von Gierke, H. E., H. O. Parrack, W. J. Gannon, and R. G. Hansen. Noise field of a turbo-jet engine. **24**: 169—1952
——, **Horace O. Parrack, W. J. Gannon, and R. G. Hansen.** Turbo-jet engine noise. **24**: 116(A)—1952
—— (see Franke, Ernst K.). **24**: 142—1952
von Recklinghausen, D. and H. H. Scott. Compact, versatile filter-type sound analyzer. **24**: 453(A)—1952
von Wittern, Wolf W. (see Franke, Ernst K.). **24**: 142—1952
Vuylsteke, Hubert A. True occidental musical scale. **24**: 87(L.E.)—1952

Wada, Yasaku and Sotoshi Shimbo. Experimental investigations on the origin of the anomalous absorption of ultrasonic waves in liquids. **24**: 199—1952
Ward, W. D. Case of tonal uniaural displacusis. **24**: 449(A)—1952
—— (see Hirsh, I. J.). **24**: 131—1952
Watson, Norman and T. V. Frazier. Equal loudness contours for hearing by bone conduction. **24**: 114(A)—1952
Watson, Robert B. Radiation loading of a piston source in a finite circular baffle. **24**: 225—1952
—— Radiation loading of a rigid piston source in a finite baffle. **24**: 119(A)—1952
—— (see Botsford, J. M.). **24**: 742—1952
Webster, J. C., P. H. Miller, P. O. Thompson, and E. W. Davenport. Masking and pitch shifts of pure tones near abrupt changes in a thermal noise spectrum. **24**: 147—1952
Weinstein, Marvin S. On the failure of plane wave theory to predict the reflection of a narrow ultrasonic beam. **24**: 284—1952
—— On the failure of plane wave theory to predict the reflection of a narrow ultrasonic beam from a plane surface. **24**: 118(A)—1952
—— Some design considerations for high frequency anechoic tanks. **24**: 455(A)—1952
Wells, Richard J. (see Fehr, Robert O.). **24**: 116(T)—1952
—— (see Fehr, R. O.). **24**: 480—1952
Wiener, Francis M. (see Munson, W. A.). **24**: 449(A)—1952
—— (see Munson, W. A.). **24**: 498—1952
Wilke, Robert R. (see Glorig, Aram). **24**: 450(A)—1952
Wilkie, D. R. Acoustic properties of flying helmets. **24**: 191—1952
Willard, G. W. Ultrasonically induced cavitation in water. **24**: 454(A)—1952
Williams, A. O., Jr. (see Carter, A. H.). **24**: 230(L.E.)—1952
—— (see Nixon, John D.). **24**: 457(A)—1952
Woodburn, James. Construction of apparatus for measuring the velocity of sound in gas mixtures. **24**: 456(A)—1952

Yeager, Ernest, Harry Dietrick, Frank Saunders, and Frank Hovorka. Measurement of colloidal vibration potentials with pulse-modulated ultrasonic waves. **24**: 117(A)—1952
Yeung, Ying-Wa (see Le Corbeiller, P.). **24**: 451(A)—1952
—— (see Le Corbeiller, P.). **24**: 643—1952
Young, F. Mansfield. Reflection from irregular surfaces. **24**: 451(A)—1952
Young, J. E. and R. H. Bolt. Transmission of sound through thin plates. **24**: 119(T)—1952
—— (see Bolt, R. H.). **24**: 451(A)—1952
Young, Robert W. Inharmonicity of plain wire piano strings. **24**: 267—1952
—— Inharmonicity of plain wire piano strings. **24**: 455(A)—1952
—— Review of acoustical patents. **24**: 98, 243, 335, 426, 556, 799—1952
—— **and R. M. Sherwood.** On plotting noise measurements. **24**: 541(L.E.)—1952

Zwislocki, Jozef. New types of ear protectors. **24**: 762—1952
—— New types of ear wardens. **24**: 448(A)—1952

Analytic Subject Index to Volume 24

Numerals in boldface type refer to volume numbers. (B.R.) designates book review; (L.E.) designates Letter to the Editor; (T) designates title only.

0. General, Unclassified

Acoustics. Harvey Fletcher. **24**: 119—1952(T)

Acustica, new international journal of acoustics. **24**: 88—1952

ASME Symposium on shock and vibration instrumentation planned for 1952. **24**: 326—1952

Atmospheric winds and temperatures to 50-kilometers altitude as determined by acoustical propagation studies. John M. Richardson and William B. Kennedy. **24**: 731—1952

Do you auralize? **24**: 416—1952(L.E.)

French bibliographical digest: Science, physics. **24**: 91—1952(B.R.)

Introduction to acoustics. Robert H. Randall. **24**: 233—1952(B.R.)

Vacancies at the Naval Research Laboratory. **24**: 89—1952

1. Acoustical Society of America

1.1 General, Unclassified

All members will receive physics today. **24**: 785—1952

Announcement of forthcoming election. **24**: 89—1952

International Electro-Acoustics Congress, Netherlands, 1953. **24**: 785—1952

Joint Symposium on Physics Today with the member societies of the American Institute of Physics. **24**: 119—1952

Report on the first meeting of the International Commission on Acoustics. **24**: 230—1952

1.2 Constitution and By-Laws

Proposed amendment to the bylaws—change in dues. **24**: 90—1952

1.5 Meetings

Dates of future meetings of the Acoustical Society. **24**: 91, 126, 327, 419, 546, 785—1952

New York Meeting, Spring, 1952. **24**: 545—1952

Photo of dinner of the Acoustical Society, May, 1952. **24**: 544—1952

Symposium on acoustics and chemistry at Western Reserve University. **24**: 232—1952

1.6 Meetings and Membership Lists

Albert London. **24**: 231—1952

Awarded IRE Fellowships. **24**: 232—1952

Dr. Preston B. Carwile. **24**: 231—1952

Dr. Cyril M. Harris heads new acoustics laboratory at Columbia. **24**: 784—1952

Dr. Winston Edward Kock receives honorary degree of Doctor of Science. **24**: 546—1952

Dr. Osman K. Mawardi receives biennial Award at New York Meeting. **24**: 544—1952

Donald E. Williamson, President of Co-Design Corporation. **24**: 784—1952

Honors to Howard A. Carter. **24**: 89—1952

New associates and members. **24**: 90, 232, 327, 419, 546, 784—1952

Sustaining members. **24**: lists precede first page of text in each issue—1952

Trevor H. Clark goes to Southwest Research Institute. **24**: 89—1952

1.7 Letters to the Editor and Errata

Acoustical energy generated by the ocean waves. Fred B. Daniels. **24**: 83—1952

American and European standard methods for measurement of sound transmission in buildings. P. H. Parkin. **24**: 542—1952

Discussion of the paper by H. B. Miller on the growth and decay of sound. David Mintzer. **24**: 86—1952

Do you auralize? Daniel W. Martin. **24**: 416—1952

Effect of factory room acoustical material installation. G. L. Bonvallet. **24**: 229—1952

Frequency response of barium titanate transducers. T. F. Hueter and E. Dozois. **24**: 85—1952

More rapidly-convergent expansion for the velocity potential of a piston source. Harold Elrod, Jr. **24**: 325—1952

Natural vibrations of rectangular quartz plates and determination of the dispersion of sound in ethyl ether. Belkis Özdoğan. **24**: 541—1952

New expansion for the velocity potential of a piston source. A. H. Carter and A. O. Williams, Jr. **24**: 230—1952

New methods of ultrasonoscopy and ultrasonography. Paul J. Ernst and Charles W. Hoffman. **24**: 87—1952

New photographic method of detecting ultrasonic radiation. L. Pétermann. **24**: 416—1952

On acoustic diffraction cross sections for oblique incidence. John W. Miles. **24**: 324—1952

On plotting noise measurements. R. W. Young and R. M. Sherwood. **24**: 541—1952

On the measurement of the loudness of speech. Irwin Pollack. **24**: 323—1952

Radiation impedance of a rigid square piston in an infinite baffle. **24**: 84—1952

Reflection of a pulse by a concave paraboloid. D. V. Anderson. **24**: 324—1952

Remarks on a paper entitled "Calculation of the directivity index for various types of radiators." H. Stenzel. **24**: 417—1952

Remarks on the determination of a differential threshold by the so-called *ABX* technique. J. Donald Harris. **24**: 417—1952

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Reverberation chamber with polycylindrical walls. J. H. Botsford, R. N. Lane, and R. B. Watson. **24**: 742—1952

ABSTRACT

Unsolved problems in architectural acoustics. Richard K. Cook. **24**: 449—1952(T)

BOOK REVIEW

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PATENT

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2.2 Auditorium Design (see also 7.6)

PAPERS

Acoustics of the remodeled House and Senate Chambers of the National Capitol. Paul E. Sabine. **24**: 121—1952

Inexpensive acoustic treatment for gymnasiums, civic coliseums, and similar structures. R. N. Lane, Frank Seay, and C. P. Boner. **24**: 127—1952

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ABSTRACTS

Acoustics of the remodeled legislative chambers of the National Capitol. **24**: 115—1952

Acoustics design of the large council chambers, permanent headquarters of the United Nations, New York. Robert B. Newman. **24**: 450—1952

Audio design in TV studio systems. Emil T. Vincent. **24**: 455—1952(T)

2.3 Studies of Existing Auditoria

PAPER

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ABSTRACT

Acoustics of the remodeled legislative chambers of the National Capitol. Paul E. Sabine. **24**: 115—1952

2.4 Sound Absorption, Theory and Methods of Measurement of (see also 2.5)

PAPERS

Note on Beranek's theory of the acoustic impedance of porous materials. J. W. McGrath. **24**: 305—1952

Reverberation chamber with polycylindrical walls. J. H. Botsford, R. N. Lane, and R. B. Watson. **24**: 742—1952

Theory of sound absorptive materials. Cyril M. Harris and Charles T. Molloy. **24**: 1—1952

Tube method of measuring sound absorption. Hawley O. Taylor. **24**: 701—1952

Use of perforated facings in designing low frequency resonant absorbers. D. B. Callaway and L. G. Ramer. **24**: 309—1952

ABSTRACT

Experimentation on the theory of the reverberation method of measuring acoustical absorption. H. C. Hardy and F. G. Tyzzer. **24**: 115—1952

SUBTITLES

Comparison of various reverberation chambers. J. H. Botsford, R. N. Lane, and R. B. Watson. **24**: 742—1952

Normal acoustic impedance concept. Cyril M. Harris and Charles T. Molloy. **24**: 2—1952

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Perforated panels. Cyril M. Harris and Charles T. Molloy. **24**: 6—1952

Resonator absorbers. Cyril M. Harris and Charles T. Molloy. **24**: 6—1952

2.5 Materials for Sound Absorption. Values of Absorption Coefficients and Acoustical Impedances

PAPERS

Inexpensive acoustic treatment for gymnasiums, civic coliseums, and similar structures. R. N. Lane, Frank Seay, and C. P. Boner. **24**: 127—1952

Total sound absorption for upholstered theater chairs with audience. R. N. Lane and James Botsford. **24**: 125—1952

SUBTITLES

Absorption coefficients of Johns-Manville 1-in. Permacoustic. Cyril M. Harris and Charles T. Molloy. **24**: 4—1952

Acoustic resistance and reactance of Celotex, Duct Liner, and Perfatone. J. W. McGrath. **24**: 306—1952

PATENTS

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Acoustic panel. Desiré Gonda. **24**: 556—1952.

Acoustic testing structure, including sound absorbing panels. Thomas T. Tucker. **24**: 556—1952.

Acoustic testing structure including sound absorbing panels. Thomas T. Tucker. **24**: 556—1952.

Acoustical tile composition and method of making acoustical tiles. Henry William Heine. **24**: 557—1952.

Acoustical venetian blind. Hardy K. Phillips. **24**: 800—1952

Building construction. Carl C. Droeger. **24**: 799—1952

Ceiling carried fabric louver structure. Edward Rambusch. **24**: 799—1952

Composition for making acoustical material. John Deane. **24**: 557—1952

Method of producing heat and sound insulation. Albert E. Gessler, William F. Grupe, Clifford J. Rolle, and Francis J. Tuttle, **24**: 557—1952.

Panel securing device. William S. Miles. **24**: 799—1952

Plaster and method of plastering. Ralph L. Dickey, Chester R. Austin, and Arnold E. Pavlish, **24**: 557—1952.

Process of making acoustical tile. Grant S. Willey and Orcutt W. Frost. **24**: 557—1952.

Sound-absorbing surface covering material. Theodor Muller **24**: 557—1952

Sound-deadening structure. Paul G. Peik. **24**: 556—1952

Sound-deadening unit. Paul G. Peik. **24**: 557—1952

Sound insulation board. Per Anders. **24**: 800—1952

Testing-apparatus with sound absorbing panels forming air passages. Thomas T. Tucker. **24**: 799—1952

Wall with sound absorbing material positioned behind an array of sound reflectors. Ernest T. Fisk and Alexander Wood. **24**: 800—1952

2.6 Noise Reduction by Increased Room Absorption

PAPER

Effect of factory room acoustical material installation. G. L. Bonvallet. **24**: 229—1952(L.E.)

PATENT

Sound silencing means for circular saws. Donald E. Sutton **24**: 800—1952

2.7 Reverberation and Echoes (see also 2.3, 2.4, 2.8, 2.9 and 2.10)

PAPER

Discussion of the paper by H. B. Miller on the growth and decay of sound. David Mintzer. **24**: 86—1952(L.E.)

ABSTRACT

Reverberation by ultraspeed recording. James Y. Dunbar and C. J. LeBel. **24**: 115—1952

PATENT

Acoustic studio with variable reverberation time. George K. Graham. **24**: 557—1952

2.9 Sound Transmission. Theory and Methods of Measurement of (see also 2.10)

PAPER

American and European standard methods for measurement of sound transmission in buildings. P. H. Parkin. **24**: 542—1952(L.E.)

ABSTRACTS

Noise control for eight- by six-foot supersonic wind tunnel. L. L. Beranek, S. Labate, R. H. Bolt, R. B. Newman, and U. Ingard. **24**: 447—1952

Some data on the performance of sound attenuating treatments. Samuel Lebate. **24**: 447—1952

2.10 Sound Insulating Structures. Values of Transmission Coefficients

PATENT

Means for reducing propeller vibrational effects. Merle C. Brady. **24**: 558—1952

2.11 Vibration Insulating Supports

PATENTS

Antivibration mounting device. William E. Barber and James Ormond Cole. **24**: 801—1952

Cushioning and vibration damping support. L. F. Thiry. **24**: 243—1952

Cushioning support. Leon F. Thiry. **24**: 336—1952
Cushion mounting device. Robert W. Fernstrum. **24**: 99—1952
Flexible mounting. John R. Bennett. **24**: 98—1952
Fluid-modified mounting. Leon F. Thiry. **24**: 427—1952
Machinery base. Siegfried Rosenzweig. **24**: 98—1952
Mounting. Norman E. Lee. **24**: 99—1952
Mounting. Norman E. Lee. **24**: 98—1952
Mounting. Norman E. Lee. **24**: 337—1952
Mounting. Norman E. Lee. **24**: 337—1952
Mounting. Norman E. Lee. **24**: 800—1952
Mounting of gramophone units and the like. Edmund Walter Mortimer. **24**: 244—1952
Nondirectional isolator unit. P. C. Efromson, J. A. Dickie, and R. C. Lewis. **24**: 244—1952
Nondirectional isolator unit. P. C. Efromson and R. C. Lewis. **24**: 336—1952
Phonograph shock and vibration absorbing support. Robert M. Cain. **24**: 99—1952
Resilient mounting. Gustav H. Kaemmerling. **24**: 335—1952
Resilient mounting. LeRoy M. Kubaugh. **24**: 335—1952
Resilient mounting. Eldon P. Neher. **24**: 337—1952
Resilient mounting for motors and the like. Curt Saurer. **24**: 243—1952
Resilient mounting for motors and the like. Curt Saurer. **24**: 244—1952
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Shock absorbing device. Robert Iredell, Jr. **24**: 244—1952
Shock and vibration insulator. Felix L. Yerzley. **24**: 337—1952
Shock mount. David L. Bacon and James E. McLoughlin. **24**: 337—1952
Shockproof mounting. John E. Flanagan. **24**: 335—1952
Silencing pad. Harry C. Yaeger. **24**: 244—1952
Spring shock and vibration isolator. James W. Irby and Wilbur Johannesburg. **24**: 427—1952
Support. Norman E Lee. **24**: 337—1952
Supporting arrangement. Jesse Markowitz. **24**: 335—1952
Vibration absorbing means for business machines or the like. Robert E. Boyden. **24**: 336—1952
Vibration absorbing mounting. Carl Hussman. **24**: 335—1952
Vibration absorbing mounting for sewing machines. Joseph Galkin. **24**: 336—1952
Vibration absorbing support. Howard M. Dodge. **24**: 336—1952
Vibration dampener mounting for washing machines and the like. Peter E. Geldhof. **24**: 427—1952
Vibration dampening mount. Cecil S. Robinson. **24**: 335—1952
Vibration damping mounting for optical observation instruments. James W. French, John M. Strank, and Charles D. Macgill. **24**: 426—1952
Vibration isolating support. Carl Hussman. **24**: 800—1952
Vibration isolator. Kenneth W. Johnson. **24**: 336—1952
Vibration isolator. George J. Muller. **24**: 558—1952
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Vibration mounting. Dan T. Bradley. **24**: 98—1952
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Acoustique (Acoustics). Adrien Foch. **24**: 328—1952
Air-jet generator as a means for setting up waves in a liquid medium. Jul. Hartmann and F. Larris. **24**: 233—1952
American standard acoustical terminology. American Standards Association. **24**: 91—1952
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Concepts and methods of theoretical physics. R. B. Lindsay. **24**: 787—1952
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Fourier transforms. Ian N. Sneddon. **24**: 328—1952
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Fundamentals of electronics. F. H. Mitchell. **24**: 91—1952
Handbook of engineering fundamentals. Ovid W. Eshbach. **24**: 548—1952
How we hear and how tones make music. Max F. Meyer. **24**: 329, 787—1952
Introduction to acoustics. Robert H. Randall. **24**: 233—1952
Language and communication. George A. Miller. **24**: 233—1952
Motor phonetics, a study of speech movements in action. R. H. Stetson. **24**: 329—1952
Music and sound. Ll. S. Lloyd. **24**: 233—1952
The organ. William Leslie Sumner. **24**: 788—1952
Pianos, pianists, and sonics. G. A. Briggs. **24**: 91—1952
Scientific papers of James Clerk Maxwell. Edited by W. D. Niven. **24**: 789—1952
Synchronization of air-jet generators, with an appendix on the stem generator. Jul. Hartmann and Erik Trudso. **24**: 233—1952
Ultrasonic physics. E. G. Richardson. **24**: 420—1952
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Journal abbreviations list. Robert T. Beyer. **24**: 790—1952
References to contemporary papers on acoustics. Robert T. Beyer. **24**: 92, 234, 330, 421, 548, 790—1952

3.3 Patents

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4. The Ear and Hearing

4.1 General, Unclassified

PAPERS

Acoustic significance of the amplitude and phase of harmonics present in a source of sound in a room. Joseph G. Robbins. **24**: 380—1952
Acoustical determinants of audiogenic seizures in laboratory mice. Hubert Frings and Mable Frings. **24**: 163—1952
Brownian motion and the transmission of energy in the cochlea. H. L. de Vries. **24**: 527—1952
Comfortable listening levels for pure tones in quiet and noise. Irwin Pollack. **24**: 158—1952
Do you auralize? Daniel W. Martin. **24**: 416—1952(L.E.)
Information of elementary auditory displays. Irwin Pollack. **24**: 745—1952
Preception of speech sounds by deafened persons. **24**: 490—1952

ABSTRACTS

Case of tonal uniaural diplacusis. W. D. Ward. **24**: 449—1952
Effect of different types of electrodes in electrophonic hearing. Gordon Flottorp. **24**: 447—1952
Perception of vowel formants. K. N. Stevens. **24**: 450—1952
Signal detection in hearing. C. W. Sherwin. **24**: 448—1952
Ultrasonic attenuation in human skull bone. T. F. Hueter, H. T. Ballantine, Jr., and D. Kyrazis. **24**: 449—1952

4.2 Anatomy and Physiology of the Ear

PAPERS

Dc resting potentials inside the cochlear partition. Georg v. Békésy. **24**: 72—1952
Dimensions of the cochlea (guinea pig). César Fernández. **24**: 519—1952

Dynamics of the middle ear and its relation to the acuity of hearing. Harvey Fletcher. **24**: 129—1952
Gross localization of the place of origin of the cochlear microphonics. G. v. Békésy. **24**: 399—1952
Space-time pattern of the cochlear microphonics (guinea pig), as recorded by differential electrodes. I. Tasaki, H. Davis, and J.-P. Legouix. **24**: 502—1952

ABSTRACTS
Antibiotics and the cochlea. Joseph E. Hawkins, Jr. **24**: 448—1952
Mechanical impedance of the human mastoid and its relation to the calibration of bone conduction transducers. Ernst K. Franke. **24**: 114—1952
Space-time patterns of the cochlear microphonic in guinea pig. I. Tasaki, H. Davis, and J.-P. Legouix. **24**: 447—1952

SUBTITLES
Pressure amplification of the mechanical transformer of the middle ear. Harvey Fletcher. **24**: 129—1952
Velocity amplitudes of the basilar membrane at various positions and for various impressed frequencies. Harvey Fletcher. **24**: 130—1952

4.4 Deafness (see also 5.5)

PAPERS
Jaw motions relative to the skull and their influence on hearing by bone conduction. Ernst K. Franke, Henning E. von Gierke, Frederick M. Grossman, and Wolf W. von Wittern. **24**: 142—1952
Perception of speech sounds by deafened persons. Harvey Fletcher. **24**: 490—1952
Tentative estimate of a hearing damage risk criterion for steady-state noise. Howard C. Hardy. **24**: 756—1952
Unsolved problems relating to hearing loss in industry. Gordon D. Hoople. **24**: 765—1852

ABSTRACTS
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Preliminary estimate of a hearing damage risk criterion for steady-state noise. Howard C. Hardy. **24**: 446—1952
Unsolved problems relating to hearing loss in industry. Gordon D. Hoople. **24**: 449—1952(T)

4.5 Instruments Relating to Hearing, and for the Testing of Hearing (see also 5.5)

PAPERS
Acoustic properties of flying helmets. D. R. Wilkie. **24**: 191—1952
New types of ear protectors. Jozef Zwislocki. **24**: 762—1952

ABSTRACTS
Mechanical sound sources for obstacle perception by audition. Vic Twersky. **24**: 451—1952
New automatic screening audiometer. Aram Glorig and Robert R. Wilke. **24**: 450—1952
New types of ear wardens. J. Zwislocki. **24**: 448—1952
Perception of speech by deafened listeners and its relation to the design of hearing aids. Harvey Fletcher. **24**: 448—1952
Recent advances in hearing aids. L. Grant Hector, Harry A. Pearson, Neal J. Dean, and Richard W. Carlisle. **24**: 448—1952

PATENTS
Acoustic coupler for earphones. John Volkman. **24**: 558—1952
Audiometer. Henry M. Bach. **24**: 100—1952
Bone conducting receiver with electromagnetic vibrator. Scott N. Reger. **24**: 99—1952
Ear protector. Maurice C. Rosenblatt. **24**: 428—1952
Earplug. Marta Fornet **24**: 558—1952
Electroacoustic transducer. Frank Massa. **24**: 244—1952
Electroacoustic transducer set. Jarret L. Hathaway and William Hotine. **24**: 428—1952
Electromagnetic earphone. Harry B. Shaper. **24**: 428—1952
Headset. Russell C. Gilbert. **24**: 428—1952
Hearing aid. William Dubilier. **24**: 244—1952
Hearing aid support. George W. French. **24**: 99—1952
Hearing aid support. George W. French. **24**: 427—1952
Lady's hearing aid hat construction. Annabelle Maffris. **24**: 558—1952
Magnetic microphone. Samuel F. Lybarger. **24**: 100—1952
Receiver for hearing aids. Franklin S. Nelson. **24**: 100—1952
Sound conducting tube for hearing aids. Lillian D. Cates. **24**: 337—1952
Testing instrument for acoustic devices. Frank Massa. **24**: 99—1952
Unitary amplifier for hearing aids. Frank S. Corso and Theodore H. Crabtree. **24**: 100—1952
Vibration-damping-electromagnetic coupling unit for sound amplifying apparatus. John G. Prentiss. **24**: 244—1952

4.6 Loudness, Threshold Determination

PAPERS
Anomalous behavior of the threshold of hearing in relation to the equal loudness contours. R. Guelke and H. Helm. **24**: 317—1952
Brownian motion and the transmission of energy in the cochlea. H. L. de Vries. **24**: 527—1952
Comfortable listening levels for pure tones in quiet and noise. Irwin Pollack. **24**: 158—1952
In search of the missing 6 db. W. A. Munson and Francis M. Wiener. **24**: 498—1952
Jaw motions relative to the skull and their influence on hearing by bone conduction. Ernst K. Franke, Henning E. von Gierke, Frederick M. Grossman, and Wolf W. von Wittern. **24**: 142—1952
Loudness chart for octave-band data on complex sounds. F. Mintz and F. G. Tyzzer. **24**: 80—1952
Loudness of bands of noise. Irwin Pollack. **24**: 533—1952
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ABSTRACTS
Equal loudness contours for hearing by bone conduction. Norman Watson and T. V. Frazier. **24**: 114—1952
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4.7 Masking (see also 5.5)

PAPERS
Comfortable listening levels for pure tones in quiet and noise. Irwin Pollack. **24**: 158—1952
Masking and pitch shifts of pure tones near abrupt changes in a thermal noise spectrum. J. C. Webster, P. H. Miller, P. O. Thompson, and E. W. Davenport. **24**: 147—1952
Masking of tones by white noise as a function of the interaural phases of both components. I. 500 cycles. Lloyd A. Jeffress, Hugh C. Blodgett, and Bruce H. Deatherage. **24**: 523—1952

ABSTRACTS
Masking of tones by white noise as a function of the interaural phases of both components. Lloyd A. Jeffress, Hugh C. Blodgett, and Bruce Deatherage. **24**: 113—1952
Masking of tones by white noise as a function of the interaural time displacement of the noise. Lloyd A. Jeffress, Hugh C. Blodgett, and Bruce H. Deatherage. **24**: 450—1952

4.8 Phase Effects (see also 4.3)
PAPERS
Acoustic significance of the amplitude and phase of harmonics present in a source of sound in a room. Joseph G. Robbins. **24**: 380—1952
Phase principle for complex-frequency analysis and its implications in auditory theory. W. H. Huggins. **24**: 582—1952
4.9 Pitch
PAPERS
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ABSTRACTS
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4.10 Subjective Tones
ABSTRACT
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PAPERS
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4.13 Ear Acoustical Impedance
PAPERS
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5.1 General, Unclassified
PAPER
Automatic recognition of spoken digits. K. H. Davis, R. Biddulph, and S. Balashek. **24**: 637—1952
ABSTRACTS
Acoustic instrumentation for high intensities. R. W. Leonard and I. Rudnick. **24**: 451—1952
Analytical comparison of square-law and correlation detectors. Robert Hills, Jr., and James J. Faran, Jr. **24**: 452—1952
Experimental comparison of square-law and correlation detectors. James J. Faran, Jr., and Robert Hills, Jr. **24**: 452—1952
Simple electronic correlator. James J. Faran, Jr. **24**: 452—1952
PATENTS
Acoustic signaling device. Benigno Molteni and Luigi Gerletti. **24**: 428—1952
Apparatus triggered by recorded signals. Stanley Breen. **24**: 100—1952
Audible electric signaling apparatus. Christian Miller. **24**: 559—1952
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Discriminating acoustic signal detector. Frank P. Weber and Martin J. Carmody. **24**: 338—1952
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Electric sound horn. John M. Aufiero. **24**: 429—1952
Electronic siren. William Fleming. **24**: 338—1952
Horn. Walter A. Garratt. **24**: 429—1952
Indicator for the blind. Joseph B. Walker. **24**: 429—1952
Magnetostrictive stress-responsive device and system embodying the same. Herbert C. Roters. **24**: 338—1952
Means for the application of alternating shear at sonic frequencies to the treatment of material. Gordon C. Seavey and Caperton B. Horsley. **24**: 560—1952
Multitone whistle. William R. Smith. **24**: 558—1952
Oscillation generator for noisemaking devices. Byron E. Phelps. **24**: 559—1952
Piezoelectric crystal and means for and method of controlling its frequency response characteristics. Billy E. Parker. **24**: 338—1952
Plural tone duck call. Robert J. Fahey. **24**: 428—1952
Roadway with sound track and method of forming the tracks. Floyd J. Dofsen. **24**: 559—1952
Rotary whistle. Harry R. Vanaman. **24**: 559—1952
Signal horn. Roy D. Buell. **24**: 558—1952
Signal transmitting device for vehicles. Francoire Gagnaire. **24**: 338—1952
Signal detector. Robert W. Hart. **24**: 101—1952
Sound creating device. Walter A. Garratt. **24**: 559—1952
Squirrel-call sound box. Sidney S. Thomson and Cecil A. Hendrix. **24**: 428—1952
Stethoscope with valved sound passage. James J. Tynan. **24**: 338—1952
Sonic air-speed and stall indicator. Igor B. Bensen. **24**: 558—1952
Vibration responsive control. Harry A. Wilcox and Bernard J. Midlock. **24**: 429—1952
Vibrator. John G. M. Brodén. **24**: 429—1952
Voice-operated signaling system. Robert C. Mathes. **24**: 559—1952
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5.2 Amplifiers and Attenuators
PATENTS
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Tone compensated volume control. Walter B. Shirk. **24**: 101—1952
BOOK REVIEW
Fundamentals of electronics. F. H. Mitchell. **24**: 91—1952
5.3 Acoustical and Mechanical Impedance Measurement (see also 11.4)
PAPER
Apparatus for absolute measurement of analogous impedance of acoustic elements. George B. Thurston. **24**: 649—1952
5.4 Analyzers and Filters, Mechanical and Electrical. Acoustic Filters. Oscillographs (see also 5.15)
PAPERS
Acoustical interference filters. K. K. Curtis and L. N. Hadley. **24**: 721—1952

Frequency-band multiplication or division and time-expansion or compression by means of a string filter. Friedrich Vilbig. **24**: 33—1952

ABSTRACTS

Compact, versatile filter-type sound analyzer. D. von Recklinghausen and H. H. Scott. **24**: 453—1952

Instantaneous frequency band multiplication, division, and analysis. Friedrich Vilbig. **24**: 113—1952

Method for studying speech communication systems. E. L. R. Corliss. **24**: 449—1952

Simplified audiospectrometer. R. W. Benson and I. J. Hirsh. **24**: 453—1952

PATENTS

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Instantaneous frequency analyzer. Harry R. Foster and Elmo E. Crump. **24**: 801—1952

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Vibration analyzing apparatus. Donald C. Culver, Rudolf F. Wild, Thomas R. Harrison, and Walter P. Wills. **24**: 561—1952

Visualization of complex waves. Ralph K. Potter. **24**: 560—1952

Wave analyzer. George W. Cook. **24**: 338—1952

5.5 Audiometers (see also 4.4 and 4.5)

ABSTRACTS

New automatic screening audiometer. Aram Glorig and Robert R. Wilke. **24**: 450—1952

Noise audiometry. Juergen Tonndorf and F. A. Brogan. **24**: 448—1952

5.5.1 Broadcasting

ABSTRACTS

Audio design in TV studio systems. Emil T. Vincent. **24**: 455—1952(T)

Microphone technique—TV. H. M. Gurin. **24**: 455—1952(T)

Outline of typical sound broadcasting and TV broadcasting system. George Nixon. **24**: 455—1952(T)

Sound and construction problem. Michael Kodaras. **24**: 455—1952(T)

Sound problems encountered in field TV broadcasting. Tom Howard. **24**: 455—1952(T)

PATENTS

Device for monitoring sound transmission by radio. Edward F. Hogan. **24**: 101—1952

Sound on sync separation system. Arthur Valentine Lord. **24**: 245—1952

5.7 Frequency Standards, Frequency Measuring, and Recording Instruments

PATENTS

Electrical coupling system for magnetostrictive elements. Hugh L. Donley and Chandler Wentworth. **24**: 339—1952

Frequency change indicator. Thomas E. Lynch. **24**: 561—1952

5.8 Loudspeakers, Horns (see also 5.13, 5.17, and 5.18)

PAPER

Design of optimum directional acoustic arrays. N. Davids, E. G. Thurston, and R. E. Mueser. **24**: 50—1952

ABSTRACTS

Compound direct radiator loudspeaker. Harry F. Olson, John Preston, and Everett G. May. **24**: 451—1952

Corner loudspeaker-enclosure combination. J. J. Baruch and H. C. Lang. **24**: 451—1952

Resonance in barium titanate tubes. James F. Haskins. **24**: 117—1952

Shift of the transition points in barium titanate by partial substitution. E. J. Brajer, Hans Jaffe, and Frank Kulcsar. **24**: 117—1952

SUBTITLES

Directivity patterns of arrays. N. Davids, E. G. Thurston, and R. E. Mueser. **24**: 54—1952

Harmonic content of loudspeaker. R. Guelke and H. Helm. **24**: 320—1952

PATENTS

Acoustic diaphragm. Arthur H. Johnson. **24**: 561—1952

Acoustic diaphragm and baffle. Wendell L. Carlson and Loy E. Barton. **24**: 249—1952

Acoustic diaphragm with plural voice coil supports. Joseph B. Brennan. **24**: 249—1952

Cabinet for radio apparatus. John Reid and Paul F. G. Holst. **24**: 101—1952

Cone diaphragm for loudspeakers. Clifford E. Stevens. **24**: 249—1952

Diaphragm for electroacoustic transducers. Harris F. Hopkins. **24**: 248—1952

Diaphragm mounting. Frank H. Slaymaker, Willard F. Meeker, and Lynn L. Merrill. **24**: 561—1952

Driver unit for loudspeakers. Sidney E. Levy. **24**: 561—1952

Dual speaker control. Rennie Irwin Weber. **24**: 249—1952

Electroacoustical transducer. Randall B. Baker. **24**: 561—1952

Electroacoustic transducer. Jan de Boer and Gerrit Schenkel. **24**: 249—1952

Electroacoustic transducer for actuating loudspeakers. Milton Morse. **24**: 248—1952

Electrodynamic loudspeaker and mounting therefor. Gordon S. Carbonneau. **24**: 246—1952

Electrodynamic loudspeaker assembly. William C. Eaves. **24**: 430—1952

Electrodynamic pillow-type loudspeaker. Joseph D. Zimmerman. **24**: 246—1952

Electrodynamic sound reproducer. H. C. Willson. **24**: 247—1952

Electrodynamic speaker. John F. Marquis. **24**: 249—1952

Electromagnetic transducer. Leslie Russell Ward. **24**: 248—1952

Electrodynamic transducer and connector therefor. Harris F. Hopkins and Robert E. Prescott. **24**: 339—1952

Electrostatic sound reproducer. Jose W. Acosta. **24**: 246—1952

High fidelity sound reproducing unit with resiliently suspended baffle plate. Murry K. Hodge. **24**: 430—1952

Housing for space heaters and sound translators. David Sandler. **24**: 246—1952

Hydraulic electromechanical transducer. Alfred Leslie W. Williams. **24**: 339—1952

Immersible electrodynamic loudspeaker. John D. Seabert. **24**: 245—1952

Loudspeaker. Robert C. Hunter. **24**: 249—1952

Loudspeaker assembly. Cyrus E. Hoekstra and John C. Radcliffe. **24**: 101—1952

Loudspeaker assembly. Cyrus E. Hoekstra and John C Radcliffe. **24**: 249—1952

Loudspeaker cabinet with inclined baffles. Nathan L. Daniel. **24**: 101—1952

Loudspeaker diaphragm. Clifford E. Stevens. **24**: 248—1952

Loudspeaker made from separate units having locking ring securing units together. Reginald Denison Charlesworth. **24**: 562—1952

Loudspeaker having auxiliary equipment disposed therein. Arthur W. Page. **24**: 249—1952

Loudspeaker mounting. Duncan E. Graham. **24**: 102—1952

Loudspeaker mounting. Sidney E. Levy. **24**: 249—1952

Loudspeaker mounting. Benjamin W. Lowell. **24**: 249—1952

Loudspeaker unit. Rudolph T. Bozak. **24**: 102—1952

Loudspeaker with expanding horn unit. George L. Carrington. **24**: 430—1952

Loudspeaker with flexible diaphragm mounting. Albert L. Witchey. **24**: 102—1952

Magnetic structure. Sidney E. Levy. **24**: 339—1952

Magnet structure for loudspeakers. Sidney E. Levy. **24**: 247—1952
Magnet support for radio speakers. Donald G. Munson. **24**: 247—1952
Magnetic structure for speakers. George S. Holly. 24: 248—1952
Method of manufacturing loudspeakers. Janes P. Quam. **24**: 246—1952
Microphone with opposite electrodes being of varying and constant curvature. Ralph R. Stevens. **24**: 247—1952
Multiple section diaphragm loudspeaker. Frederick A. Lindley. **24**: 248—1952
Peripherally driven electroacoustical transducer. John J. Root. **24**: 248—1952
Permanent magnet electrodynamic loudspeaker. E. L. Russell. **24**: 247—1952
Permanent magnet electrodynamic loudspeaker structure adapted for ready assembly. Sidney E. Levy. **24**: 247—1952
Permanent magnet electrodynamic transducer. Albert L. Seifried. **24**: 249—1952
Permanent magnet structure for electrodynamic loudspeakers. Francis B. Smith. **24**: 245—1952
Permanent magnet system for loudspeakers. Paul G. A. H. Voigt. **24**: 430—1952
Pole piece centering arrangement for permanent magnet electrodynamic loudspeakers. Bernard A. Engholm. **24**: 246—1952
Portable sounding device. Richard M. Albrecht. **24**: 561—1952
Regenerative electromechanical transducer. Harry B. Schultheis, Jr. **24**: 429—1952
Sound dispersing device. Fred A. Manley. **24**: 430—1952
Sound intensifier. Samuel B. Rubinstein. **24**: 429—1952
Sound reproducing device. Siegfried Zuerker. **24**: 248—1952
Sound wave diffuser. Lawrence M. Stark. **24**: 429—1952
Speaker and heater unit for drive-in theaters. Maurice S. Cole. **24**: 561—1952.
Speaker having a tubular pot. Donald C. Carlson. **24**: 339—1952
Telephone transmitter having frustoconical back electrode. Herbert W. Bryant. **24**: 247—1952
Transcriber listening device. Robert L. Stone and Frank E. Runge. **24**: 102—1952
Voice coil for radio loudspeakers. Richard K. Y. Kim. **24**: 339—1952

5.9 Microphones, Vibration Microphones, Microphone Calibration Equipment and Techniques (see also 5.18 and 13.11t)

PAPERS

Design of optimum directional acoustic arrays. N. Davids, E. G. Thurston, and R. E. Mueser. **24**: 50—1952
Reciprocity calibration of piezoelectric accelerometers. Mark Harrison, A. O. Sykes, and Paul G. Marcotte. **24**: 384—1952

ABSTRACTS

Analytical comparison of square-law and correlation detectors. Robert Hills, Jr., and James J. Faran, Jr. **24**: 452—1952
Experimental comparison of square-law and correlation detectors. James J. Faran, Jr., and Robert Hills, Jr. **24**: 452—1952
Resistively terminated probe microphone. R. W. Leonard. **24**: 113—1952
Resonance in barium titanate tubes. James F. Haskins. **24**: 117—1952
Shift of the transition points in barium titanate by partial substitution. E. J. Brajer, Hans Jaffe, and Frank Kulcsar. **24**: 117—1952

SUBTITLE

Directivity patterns of arrays. N. Davids, E. G. Thurston, and R. E. Mueser. **24**: 54—1952

PATENTS

Acoustical diaphragm with stiffening means. Athol E. N. Lawrance. **24**: 252—1952
Bridge-type transducer circuit with oscillator. Johannes Jacobus Zaalberg van Zelst. **24**: 801—1952
Circuit for capacity microphones of pick-ups. Madison G. Nicholson, Jr. **24**: 250—1952
Close talking microphone. Alfred H. Kettler. **24**: 340—1952
Combined microphone and switch. Robert L. Stone and Frank E. Runge. **24**: 340—1952
Condenser microphone structure. William J. Moreland, Jr. **24**: 253—1952
Device for detecting variations in fluid pressure. Thurlow M. Gordon, Jr. **24**: 562—1952
Device for the stereophonic recording of sound vibrations. Kornelis de Boer and Arend Thomas van Urk. **24**: 340—1952
Directional microphone. Benjamin B. Bauer. **24**: 562—1952
Directional microphone. Harry F. Olson. **24**: 431—1952
Directional microphone with a compliant link interconnected between the two diaphragms. Benjamin B. Bauer. **24**: 103—1952
Electroacoustic diaphragm coupling. Dennis Edward Skelton. **24**: 339—1952
Electrodynamic hand microphone of the pressure gradient type. Robert K. Duncan. **24**: 251—1952
Electrometer transducer with dual mode of operation. Howard W. Ashton. **24**: 431—1952
Inertial electromagnetic throat microphone. Daniel W. Martin. **24**: 250—1952
Line type pressure responsive microphone. Harry F. Olson and John Preston. **24**: 253—1952
Means for improving the sensitivity and the response characteristics of velocity microphones. Harry F. Olson and John Preston. **24**: 252—1952
Microphone. Gerald E. Chess. **24**: 252—1952
Microphone. Alfred H. Kettler. **24**: 340—1952
Microphone damping system having rear openings. Samuel C. Tallman. **24**: 431—1952
Microphone having controllable directional pattern. Robert Black, Jr. **24**: 250—1952
Microphone sound passage structure. George L. Carrington. **24**: 253—1952
Moistureproof microphone. Lyndall Crossthwaite Pocock. **24**: 251—1952
Microphone waterproofing device. William Donald Cragg and Michael Lawrence Gayford. **24**: 103—1952
Permanent magnet electrodynamic transducer. Albert L. Siefried. **24**: 103—1952
Piezoelectric microphone. Parker B. Wickham and Samuel A. Johnston. **24**: 340—1952
Pressure gradient responsive microphone. Leslie J. Anderson. **24**: 252—1952
Ribbon support for high fidelity electroacoustical transducers. Robert K. Duncan. **24**: 252—1952
Second-order differential microphone. Alpha M. Wiggins. **24**: 102—1952
Second-order differential microphone. Alpha M. Wiggins. **24**: 252—1952
Sound wave transducer. Leslie J. Anderson. **24**: 431—1952
Telephone transmitter. William Alfred Codd. **24**: 340—1952
Telephone transmitter. Helmuth Eckardt. **24**: 253—1952
Telephone transmitter with radial slots in the carbon chamber. Ralph R. Stevens. **24**: 251—1952
Thermal transistor microphone. Winston E. Kock. **24**: 251—1952

Unidirectional dual microphone. Michael Lawrence Gayford. **24**: 252—1952
Velocity type microphone. Harry F. Olson and John Preston. **24**: 562—1952
Vibration-operated transistor. Robert L. Wallace, Jr. **24**: 102—1952
Windscreen for microphones. Leslie J. Anderson and Alfred H. Kettler. **24**: 251—1952

5.10 Navigational Instruments Using Air Sound. Altitude Measuring Instruments. Sound Ranging (for Underwater Ranging see 13.11n). Geophysical Prospecting

PATENTS
Acoustic ranging system, including magnetic recording. David H. Weinstein and Morris Keiser. **24**: 432—1952
Acoustic well logging. Frank N. Tullos. **24**: 433—1952
Acoustical well sounder. Alexander Wolf. **24**: 104—1952
Continuous line seismometer. Paul H. Foster. **24**: 432—1952
Detector carrier for seismic exploration. John W. Flude. **24**: 254—1952
Frequency-adjustable seismic wave detector. Dayton H. Clewell. **24**: 104—1952
Geoacoustic apparatus for underground exploration. Caperton B. Horsley and Gordan Seavey. **24**: 103—1952
Geophone. Warren A. Alexander. **24**: 432—1952
Position indicator for use in blind flying of towed gliders. Robert L. Wallace, Jr., and Harold L. Ericson. **24**: 103—1952
Range and direction finder. Robert E. Miller. **24**: 104—1952
Reflection seismic exploration. Alexander Wolf. **24**: 432—1952
Seismic survey system for submerged areas. Roy Lee Gallaway. **24**: 341—1952
Seismic surveying. Josephus Overtone Parr, Jr. **24**: 340—1952
Seismographic prospecting. Lacoste G. Ellis. **24**: 254—1952
Seismometer. Richard L. Congdon. **24**: 432—1952
Seismometer system. Frank D. Case. **24**: 341—1952
Shot pulse recording in reflection seismography. Philip S. Williams. **24**: 103—1952
Surface generation of seismic waves. Randolph F. Simon and Stanley N. Heaps. **24**: 433—1952

5.12 Phase Meters

ABSTRACT
Phangle meter. R. F. Brown, J. A. Mullen, and E. L. R. Corliss. **24**: 115—1952

5.13 Public Address Systems and Sound Picture Installations

ABSTRACT
Avoidance of crosstalk in large audio systems using unshielded wire. R. H. Tanner and G. B. Thompson. **24**: 115—1952

PATENTS
Automatic volume control. Herbert W. Augustad. **24**: 562—1952
Automatic volume control. Walter F. Kannenberg. **24**: 104—1952
Directional acoustic system. Winston E. Kock. **24**: 563—1952
Loudspeaker system for drive-in theaters. Edward B. Brady. **24**: 104—1952
Moving-stairway broadcasting device. Maarten van der Reis. **24**: 104—1952
Network for intercommunication system. William A. Plice. **24**: 562—1952
Portable public address system. Robert H. Voigt. **24**: 562—1952
System for uniform distribution of ventilating air and sound energy. George K. Raider. **24**: 563—1952

5.15 Sound Level Meters. Level Recorders. Sound Pressure Measurement (see also 5.4)

PAPER
Use of binaural tape recording in automotive noise problems. David C. Apps. **24**: 660—1952

ABSTRACT
Sound-level meter and sound-survey meter. Arnold Peterson and Ervin E. Gross. **24**: 115—1952

PATENTS
Crystal pressure gauge. Augustus H. Fiske, Jr., and George E. Ledges. **24**: 563—1952
Detonation meter. Deslonde R. De Boisblanc. **24**: 563—1952
Detonation voltage measuring means. Deslonde R. De Boisblanc. **24**: 563—1952
Electromagnetic pressure sensitive device. James Clark. **24**: 563—1952
Graphic recorder with sliding coils. Arthur W. Niemann. **24**: 433—1952
Method and apparatus for calibrating sound meters. August H. Fiske, Jr. **24**: 105—1952
Sound level and sound integrating device. Chester A. Rackey and Thomas H. Phelan. **24**: 564—1952

5.16 Sound Recording and Reproducing. General

PAPER
Use of binaural tape recording in automotive noise problems. David C. Apps. **24**: 660—1952

PATENTS
Automatic frequency corrected transmission system. John Hays Hammond, Jr. **24**: 801—1952
Control device for the automatic recording of telephone conversations. Roman E. Shvetz. **24**: 564—1952
Disk record and film record sound reproducer. Freeman H. Owens. **24**: 564—1952
Disk record and film record sound reproducer. Freeman H. Owens. **24**: 564—1952
Expander-contractor amplifier system. William J. Stolze and Francis C. Gow. **24**: 254—1952
Magneto-optical transducer system. Albert W. Friend. **24**: 254—1952
Method of making sound motion-picture film. Peter F. Rossmann and Karl Rath. **24**: 341—1952
Microphone system having automatic volume level sensitivity. John Hays Hammond, Jr. **24**: 341—1952
Preshaping of recorded waves. Frederick G. Albin. **24**: 565—1952
Recording system. Ralph K. Potter. **24**. 801—1952
Ruling control system for recorders. Theodore D. Thad. **24**: 254—1952
Sound and facsimile multiplex system. Stephen J. Martin. **24**: 564—1952
Sound reproducing system and apparatus. Crosby Gauthier. **24**: 341—1952
Time recording system. Samuel G. Lutz. **24**: 565—1952

5.16d Disk Recording (including cutting and embossing)

PAPER
Phonograph needle drag distortion. J. Rabinow and E. Codier. **24**: 216—1952

PATENTS
Absorption-type modulation system. Chester M. Sinnett. **24**: 566—1952
Adjustable phonograph pick-up arm. Reuben C. Carlson. **24**: 568—1952
Apparatus for automatically playing gramophone records. Clifford Metcalfe and Alexander James Rae. **24**: 567—1952
Apparatus for erasing thermoplastic phonograph records. Albert I. Kegan. **24**: 568—1952
Apparatus for resurfacing plastic phonograph records or the like. Fortunato S. Ajero. **24**: 434—1952

Arm for holding a stylus for use with sound records. Ronald J. Rockwell. **24**: 568—1952
Attaching device for phonograph reproducer units. William S. Gillmor. **24**: 433—1952
Balanced capacity phonograph. Albert E. Hayes, Jr. **24**: 342—1952
Ball point needle for phonographs. Herbert A. Fischer. **24**: 804—1952
Bias blocking means to cut off amplifier during record changing operation. Hermon Hosmer Scott. **24**: 105—1952
Rush for phonograph needles. William H. Zimmerman. **24**: 436—1952
Clutch means for phonograph records. Edward H. Guboff. **24**: 804—1952
Cold cathode gas-filled transducer device. Paul F. Still. **24**: 435—1952
Corundum crystal recording or reproducing member. Coenraad Cornelis Verheyen. **24**: 106—1952
Corundum phonograph needle and sound reproducing apparatus embodying same. John F. Pelton and Thomas F. Hart. **24**: 345—1952
Double-track recording system. Jackson O. Kleber. **24**: 434—1952
Dual point phonograph pick-up stylus. Norman F. Martin. **24**: 436—1952
Electric phonograph with separate stylus for recording and reproducing. Lucius P. Petruschell. **24**: 802—1952
Electrical sound translating device. Lionel B. Cornwell. and John F. Nielsen. **24**: 254—1952
Electrodynamic phonograph pick-up. Kenneth F. Umpleby. **24**: 804—1952
Electrodynamic pick-up. Jan de Boer and Gerrit Schenkel. **24**: 255—1952
Electrolytic phonograph pick-up. John J. Root. **24**: 565—1952
Electromagnetic expansion and compression circuit for sound transducers. Vieri Freccia. **24**: 341—1952
Electromagnetic recording head. Marvin F. Royston. **24**: 436—1952
Electromagnetic sound reproducer. Norman C. Pickering. **24**: 803—1952
Electromechanical transducer unit. Thomas E. Lynch. **24**: 804—1952
Feedback control system for recording cutters and the like. Harry F. Olson. **24**: 343—1952
Gramophone tone arm moving device. José Soler Martin. **24**: 568—1952
Guarded stylus. Frederick W. Roberts and Simon Yerkovich. **24**: 803—1952
Hum eliminating circuit for phonograph pick-ups. Carroll R. Miner. **24**: 341—1952
Lever type piezoelectric transducer. Benjamin B. Bauer. **24**: 344—1952
Machine for reprocessing phonograph record disks. Nils T. Almquist and Anthony C. De Napoli, Jr. **24**: 568—1952
Magnetic phonograph pick-up. Donald J. Baker. **24**: 435—1952
Magnetic phonograph pick-up. Earl E. Masterson. **24**: 255—1952
Magnetic pick-up. Robert J. Aust. **24**: 803—1952
Magnetic pick-up having multistyli. Maximilian Weil. **24**: 105—1952
Means for reducing static electricity charges in nonelectroconductive styli. Dallas R. Andrews. **24**: 345—1952
Mechanoelectric transducer. William A. Wildhack. **24**: 255—1952
Method and machine for playing disk type phonograph records. Gilbert Slater. **24**: 105—1952
Method of and apparatus for sound equalization in dictating machines. Robert L. Stone and Arthur Leonard Anderson. **24**: 565—1952
Method of making sealed electromechanical translation devices. Frederick W. Roberts and John A. Duntze. **24**: 343—1952
Method of manufacturing sound recording disks. William Edward Lord. **24**: 804—1952
Microphonic suppression system for electric phonographs. Robert C. A. Eland. **24**: 435—1952
Moving-coil phonograph pick-up. Holger Christian Arentzen. **24**: 569—1952
Phonograph apparatus. Elmer Oluf Thompson. **24**: 254—1952
Phonograph control arrangement. Richard S. Cranmer. **24**: 346—1952
Phonograph mechanism. Benedict R. Kamler. **24**: 567—1952
Phonograph needle. Lloyd J. Andres. **24**: 802—1952
Phonograph pick-up. Joel A. Burtch. **24**: 434—1952
Phonograph pick-up. Francis S. Harris. **24**: 434—1952
Phonograph pick-up apparatus having a removable cartridge. Herman B. Spiegel. **24**: 802—1952
Phonograph pick-up mounting. James F. Gordon. **24**: 567—1952
Phonograph pick-up system. John W. Hammond. **24**: 565—1952
Phonograph pick-up unit. William E. Cairnes. **24**: 568—1952
Phonograph pick-up with shock-proof mounting. Donald J. Baker. **24**: 804—1952
Phonograph record. Octavio José Alvarez. **24**: 568—1952
Phonograph record. Irwin C. Clare. **24**: 566—1952
Phonograph record composition comprising vinyl resin and butadiene acrylonitrile copolymer. Joseph W. Ayers. **24**: 567—1952
Phonograph record containing polyvinyl acetal resins, ethyl cellulose, and soft, low melting point resins. Edward M. Sadowski and Eugene D. O'Mahony. **24**: 342—1952
Phonograph record molding compositions and records. Joseph W. Ayers. **24**: 568—1952
Phonograph reproducing device. Stanley A. Hall. **24**: 344—1952
Phonograph shaving collector. Winton E. McConnell and Edwin L. Bracy. **24**: 342—1952
Phonograph stylus. Lloyd J. Andres. **24**: 805—1952
Phonograph stylus. Benjamin B. Bauer. **24**: 436—1952
Phonograph stylus of small effective tip radius. Edward F. McClain, Jr. **24**: 345—1952
Phonograph tone arm. Anatole M. Gurewitsch. **24**: 344—1952
Phonograph tone-arm indexing mechanism. Hermann E. F. C. Lingenbrink. **24**: 343—1952
Phonograph tone-arm supporting and adjusting arrangement. Louis C. Ammlung, Jr. **24**: 568—1952
Phonographic apparatus. Charles C. Davis. **24**: 254—1952
Phonographic pick-up device. Harrison D. Brailsford. **24**: 341—1952
Phonographic recording and rerecording apparatus. Lincoln Thompson. **24**: 106—1952
Pick-up arm. James E. Vistain, Jr. **24**: 344—1952
Pick-up device having a force transmitting carrier link of viscous material. Anders Johan Ansar. **24**: 344—1952
Pick-up mounting. Charles E. Kilgour. **24**: 255—1952
Piezoelectric phonograph pick-up. John E. Cordes. **24**: 345—1952
Push-pull resistance type phonograph pick-up. Joseph H. McKnight. **24**: 569—1952
Tone arm. Jerry R. Carris. **24**: 566—1952
Record player. Irving Strauss and Gerald O. Kaye. **24**: 343—1952
Record playing adapter. Ralph A. Mullaney. **24**: 105—1952
Recorder head. Frederick W. Roberts and Frederick L. Franz. **24**: 568—1952

Recording head carriage guiding means. Henry Hans Allen. **24**: 342—1952
Recording stylus. Isabel L. Capps and Emory G. Cook. **24**: 566—1952
Reproducer stylus tracking device. Chester M. Sinnett and Herbert Belar. **24**: 803—1952
Resistance-type phonograph pick-up. Neil E. Washburn. **24**: 435—1952
Signal translating apparatus. Henry P. Kalmus and Robert Lee Price. **24**: 343—1952
Slidably supported pick-up head. René Snepvangers. **24**: 342—1952
Sound film drive and guide. Thomas C. Smith, Frederick H. M. Hart, and William A. Freer. **24**: 435—1952
Sound record from polyvinyl halide, butadiene-acrylonitrile rubber, and vinsol. Clinton L. Parker. **24**: 804—1952
Sound recording and reproducing apparatus. Jacob M. Kuhlik. **24**: 434—1952
Sound recording and reproducing head. Frank L. Moore. **24**: 106—1952
Sound recording and reproducing machine. Jacob M. Kuhlik. **24**: 344—1952
Sound reproducing stylus. Edward L. Mack. **24**: 434—1952
Sound-on-film recording and reproducing machine. Jacob M. Kuhlik. **24**: 568—1952
Sound record disk. Thomas F. Saffady. **24**: 566—1952
Sound recording disk. William Edward Lord. **24**: 567—1952
Stylus guide device. Joseph Lapir. **24**: 565—1952
Stylus mounting for sound reproducers. Charles E. Kilgour. **24**: 255—1952
Switch arrangement on phonograph pick-up. William D. Huston and James M. Brady. **24**: 567—1952
Temperature-compensated vibratory system. Henry P. Kalmus. **24**: 433—1952
Tone-arm and trip-arm system for automatic phonographs. Elmo N. Voegtlin, Cleon D. O'Neal, and Henry E. Johnston. **24**: 567—1952
Tone arm carriage. Eugene R. De Weese. **24**: 802—1952
Tone arm head. Robert R. Majors. **24**: 804—1952
Tone arm indexing apparatus. Berne N. Fisher. **24**: 568—1952
Transducer chuck and stylus. George Spry. **24**: 105—1952
Transducer having a pair of levers coupling the driving member to the translating element. Benjamin B. Bauer. **24**: 342—1952
Two-speed friction drive transmission for phonograph turntables. Herbert L. Hartman. **24**: 343—1952
Universal phonograph tone arm. Maurice Palo and Alexander L. Dvorsky. **24**: 805—1952
Universal phonograph turntable. John D. Reid. **24**: 435—1952
Universal reproducing stylus. John D. Reid. **24**: 436—1952
Universal tone arm for multispeed record players. Lloyd J. Andres. **24**: 565—1952

5.16f Film Recording (by photographic method)

PATENTS

Actuating apparatus for sound system. Philip L. Karr. **24**: 805—1952
Apparatus for recording and reproducing electrical communication currents. Malbon H. Jennings. **24**: 570—1952
Electrodynamic bifilar oscillograph for noiseless sound recording on films. Hugo Thieman. **24**: 437—1952
Method and means for introducing vibrato effects into sound. Harry Mills Leonard. **24**: 436—1952
Multiple sound recording and reproducing apparatus. Adolph F. von Soden. **24**: 346—1952
Optical slit scanning unit for film reproducing systems. George R. Crane. **24**: 256—1952
Photoelectric sound reproduction. Laursiton E. Clark. **24**: 569—1952
Push-pull signaling system. Michael Rettinger. **24**: 569—1952
Reflecting surface bonded to a film. William R. Goehner. **24**: 805—1952
Scanning of sound records. Walter Ernst Germer. **24**: 346—1952
Sound film drive. Frank B. Dibble. **24**: 437—1952
Sound film recording or reproducing device. Juliette Soucy Pestel. **24**: 347—1952
Sound recording and reproducing. Guy Clutier and Marc Assada. **24**: 106—1952
Sound recording and reproducing apparatus. Claude M. Gunn. **24**: 256—1952
Sound recording system. Lewis B. Browder. **24**: 569—1952.
Supersonic light modulator. Adolph H. Rosenthal. **24**: 437—1952

5.16m Magnetic Recording

Abstract

Use of binaural tape recording in automotive noise problems. David C. Apps. **24**: 446—1952

PATENTS

Apparatus for making aural announcements. Thomas J. Valentino and Robert Fine. **24**: 438—1952
Apparatus for supplying mechanical recording bias to magnetic recorders. Marvin Camras. **24**: 571—1952
Art of making duplicate magnetic phonograph records. James Hillier. **24**: 256—1952
Automatic erase for magnetic recorders. Semi Joseph Begun and Theodore F. Deucher. **24**: 571—1952
Binaural magnetic recorder. Marvin Camras. **24**: 256—1952
Combined magnetic transducer head and coupling transformer. David E. Weigand. **24**: 438—1952
Compensating device for a magnetic recording-reproducing head. Marvin Camras. **24**: 438—1952
Coupling circuit for magnetic recorders. Marvin Camras and Raymond E. Zenner. **24**: 256—1952
Device for inserting correction in a sequence of recorded intelligence. Hans Kappeler. **24**: 256—1952
Device for minimizing the effects of torsion when reproducing a magnetic record wire. Bernard E. Lenehan. **24**: 571—1952
Device for reducing noise in magnetic recording systems. Donald G. C. Hare. **24**: 439—1952
Device for separating the magnetic transducer and record member during rewind. James B. Shickel. **24**: 257—1952
Device utilizing erase head impedance to vary amplifier gain. Lloyd J. Bobb. **24**: 806—1952
Disk type magnetic recording-reproducing apparatus. Fernand E. d'Humy and Raleigh J. Wise. **24**: 805—1952
Eddy current shield in electromagnetic transducer head. Raymond E. Zenner. **24**: 259—1952
Electromagnetic recorder wire and method of making it. Charles H. Campbell, Ronald E. Griffiths, and Willis T. Cramer. **24**: 570—1952
Electromagnetic transducer head assembly. Robert A. Von Behren. **24**: 347—1952
Electromagnetic transducer head assembly. David E. Wiegand. **24**: 438—1952
Erasing head for magnetic record members. Otto Kornei. **24**: 806—1952
Erasing system for magnetic recorders. Henry F. Schoemehl. **24**: 257—1952
Frequency modulated magnetic recording and reproducing. John P. Arndt, Jr., and John E. Shomer, Jr. **24**: 570—1952
Friction gearing for telegraphone mechanism. Lawrence Harrison. **24**: 256—1952
Head for magnetic recorders. Charles F. E. Garreau. **24**: 805—1952
Keyboard operated magnetic recorder. Louis M. Potts. **24**: 257—1952

Magazine type magnetic recording and reproducing device. Marvin Camras. **24**: 346—1952
Magnetic head and mount therefor. James L. Pettus and Frank E. Pontius. **24**: 347—1952
Magnetic instrument high-speed reel drive. Harold W. Bauman and Melvin Sackter. **24**: 571—1952
Magnetic pick-up head and mount therefor. Marvin Camras. **24**: 439—1952
Magnetic record body driving mechanism. Edmund Barany and Melvin Sackter. **24**: 570—1952
Magnetic record medium and method of making the same. Marvin Camras. **24**: 346—1952
Magnetic recorder. Wilmarth Y. Lang. **24**: 346—1952
Magnetic recorder with automatic time delay between reversals of record transport system. Thomas E. Lynch. **24**: 346—1952
Magnetic recorder-reproducer device of the disk type. Alfred L. W. Williams. **24**: 259—1952
Magnetic recording and reproducing. Dean R. Christian. **24**: 438—1952
Magnetic recording and reproducing system. Morton F. Spears. **24**: 259—1952
Magnetic recording device. Carel Jan van Loon, Cornelis de Koning, and Marten de Vroome. **24**: 806—1952
Magnetic recording head, including a device for adjusting the cap width. Donald G. C. Hare. **24**: 258—1952
Magnetic recording system. Myron J. Stolaroff. **24**: 259—1952
Magnetic reproducing device with means to prevent accidental erase of record medium. Semi Joseph Begun. **24**: 805—1952
Magnetic sound record. Theodore H. Mann and Theodore G. Mann. **24**: 570—1952
Magnetic tape recorder. Harold W. Lindsay. **24**: 258—1952
Magnetic tape recorder-reproducer. Walter J. Haloski. **24**: 256—1952
Magnetic transducer head. Frederick G. Buhrendorf. **24**: 572—1952
Magnetic transducer head and mount therefor. Emmanuel Berlant. **24**: 570—1952
Magnetic wire recording. Terry M. Schrader. **24**: 438—1952
Magnetic wire sound recording and reproducing apparatus. DeVere C. Hollenbeck. **24**: 256—1952
Mass production method of, and apparatus for making reelable magnetic phonograph records. Earl E. Masterson. **24**: 257—1952
Mount for magnetic transducing heads. Raymond Edward Zenner. **24**: 258—1952
Movement control device for magnetic sound heads on sound recording and sound reproducing machines. Oskar Grimm. **24**: 258—1952
Multigap magnetic transducer head. Herman Nygaard. **24**: 806—1952
Precision mount for magnetic recording-reproducing heads. Donald G. C. Hare. **24**: 257—1952
Safety device for magnetic record erasing. Herbert F. Kuhlow. **24**: 806—1952
Shielded magnetic sound-head and tape-guide assembly. Leslie J. Anderson. **24**: 571—1952.
Sound recording and reproducing apparatus. Byron C. Booth. **24**: 570—1952
Sound recording and reproducing apparatus. William J. Moreland and Harold G. Foote. **24**: 258—1952
Stopping device for tape in magnetic recorders. Alfred L. W. Williams. **24**: 571—1952
Stylus for magnetic recording and reproducing apparatus. Harold T. Faus. **24**: 258—1952
Switch for use with a perforated tape. Marvin Camras. **24**: 347—1952
System for the reproduction of magnetic records. Jules Henri Perreau. **24**: 438—1952
Vibratile pick-up for magnetic recorders. Michael Rettinger. **24**: 347—1952

5.17 Telephone, Telephone Recording

ABSTRACT

High intelligibility interphone system for use in military aircraft. A. H. Kettler, L. J. Flodman, D. W. Martin, and M. L. Graham. **24**: 450—1952

PATENTS

Auxiliary voice screen for telephone mouthpieces. Irving Florman. **24**: 106—1952
Electroacoustic transducer. Russell C. Miner. **24**: 260—1952
Electroacoustic transducer. Edward E. Mott. **24**: 259—1952
Electroacoustic transducer. Edward E. Mott. **24**: 260—1952
Electroacoustic transducer. Edward E. Mott. **24**: 572—1952
Electromagnetic transducer. William J. Muldoon. **24**: 260—1952
Loud speaking telephone set. Ralph K. Potter. **24**: 348—1952
Magnetic sound-powered telephonic unit. Isaac Heller. **24**: 260—1952
Reply signal for telephones. Richard F. West and Edward R. Werner. **24**: 106—1952
Selective calling system. Herbert C. Waterman and Marion R. Winkler. **24**: 572—1952
Telephone auxiliary amplifying device. Arthur T. McWane. **24**: 106—1952
Telephone mounting. Edward E. Mott. **24**: 348—1952
Telephone receiver. Charles A. Maynard. **24**: 259—1952
Telephone terminal equipment. Harold Jefferson. **24**: 439—1952
Vibratory reed signaling device. William J. Muldoon. **24**: 347—1952
Voice silencer. Leo L. Beranek. **24**: 572—1952

5.18 Transducing Principles and Structures, Thermophones (see also 5.8, 5.9, 5.17, 10.3, 13.7, and 13.11t)

PAPERS

Electromechanical properties of $BaTiO_3$ compositions showing substantial shifts in phase transition points. Don A. Berlincourt and Frank Kulcsar. **24**: 709—1952
Theoretical sensitivity of a transversely loaded, circular bimorph transducer. Edward G. Thurston. **24**: 656—1952

ABSTRACTS

Analysis of magnetostrictive and piezoelectric transducers by the mode impedance method. Frank J. Rosato. **24**: 457—1952
Effect of tube noise on the equivalent noise pressure of transducer systems. Francis X. Byrnes. **24**: 452—1952
Electromechanical response and dielectric loss of prepolarized barium titanate ceramics under maintained electric bias. Hans G. Baerwald and Don A. Berlincourt. **24**: 457—1952
Method for measuring normal and tangential forces and accelerations with barium titanate ceramics. W. P. Mason. **24**: 452—1952
Some vibration patterns of thick barium titanate disks. E. A. G. Shaw. **24**: 457—1952
Surface vibration patterns of ultrasonic radiators. III. John D. Nixon, Richard A. Rhodes, II, and A. O. Williams, Jr. **24**: 457—1952
Theoretical sensitivity of a transversely loaded, circular bimorph transducer. Edward G. Thurston. **24**: 457—1952

SUBTITLE

Torsional wave transducer. H. J. McSkimin. **24**: 356—1952

PATENTS

Ceramic electromechanical transducer. Thomas E. Lynch. **24**: 806—1952
Piezoelectric type switching relay. Arthur C. Keller. **24**: 806—1952
Transducer construction and method. Franz N. D. Kurie. **24**: 806—1952

5.19 Tuning Forks

PAPER

Time constant meter for tuning forks and other high Q devices. Charles T. Morrow. **24**: 40—1952

PATENTS

Tuning fork structure. Joseph J. Murray, Jr. **24**: 572—1952

Vibratory reed-controlled oscillator. Lee G. Bostwick. **24**: 572—1952

5.21 Vibration Devices. Devices for Generating or Damping Vibrations (see also 2.11 and 5.9), see also 2.8, 4.5, 9.6, 10.3, 13.11, 13.11n, 13.11t

PAPERS

Mechanical shock tester for instruments and electronic apparatus. Charles T. Morrow. **24**: 26—1952

Reciprocity calibration of piezoelectric accelerometers. Mark Harrison, A. O. Sykes, and Paul G. Marcotte. **24**: 384—1952

Wave effects in isolation mounts. Mark Harrison, Alan O. Sykes, and M. Martin. **24**: 62—1952

PATENTS

Amplitude limiting means for vibration dampers. George T. Bynum, Elden H. Olson, and Francis J. Wiegand. **24**: 807—1952

Driving unit for electromagnetic vibration exciters. Fred E. Stirnkorb. **24**: 573—1952

Magnetoelectric transducer for measurement of velocity and related values. S. E. Dawson. **24**: 107—1952

Projection vibration indicator. Bernard W. Smith. **24**: 106—1952

Vibration absorber. Earl F. Riopelle. **24**: 439—1952

Vibration damper. James A. Hardy. **24**: 107—1952

Vibration damper. Lester E. Hey, Arthur H. Lillenas, and Irving Mendelson. **24**, 107—1952

Vibration pick-up. Herbert M. Kroft and Milton P. Vore. **24**: 348—1952

Vibration testing equipment. J. M. Tyler, V. E. Thornburg, and J. F. Madden. **24**: 107—1952

Vibrograph. John G. Burmist. **24**: 106—1952

Wheel balancer pick-up unit. Horace M. Norman. **24**: 260—1952

6. Musical Instruments and Music

6.1 General, Unclassified

PAPER

True occidental musical scale. Hubert A. Vuylsteke. **24**: 87—1952(L.E.)

PATENTS

Chord indicator and transposer. Walter J. Quednau. **24**: 807—1952

Drive and control for automatic musical instruments. Peter T. Calamari and Paul F. Murdock. **24**: 108—1952

Means for releasing music comb vibrators from their plucking elements. Theodor R. Duncan. **24**: 808—1952

Musical chord indicating machine Cyril L. Broughton. **24**: 808—1952

Musical comb. Fred Gretsch, Jr. **24**: 807—1952

Musical instrument. Hal Horne. **24**: 807—1952

Note name finder for use by students of music. Margaret M. Rogers. **24**: 807—1952

Quartertone slide rule for musicians. Lyman Young. **24**: 107—1952

Tuning device. Delbert J. Dickerson. **24**: 807—1952

Visual instruction device. Edith Howse Pierce and Edwin M. Schantz. **24**: 807—1952

Whistle. Norman H. Pitts. **24**: 260—1952

BOOK REVIEWS

How we hear and how tones make music. Max F. Meyer. **24**: 329—1952

Music and sound. Ll. S. Lloyd. **24**: 233—1952

6.2 Bells, Xylophones. Other Instruments Having Rigid Vibrators

ABSTRACT

Measurements of the tonal characteristics of carillon bells. Frank H. Slaymaker and Willard F. Meeker. **24**: 451—1952

PATENTS

Apparatus for producing chime tones and method of tuning musical bars. Paul H. Rowe. **24**: 809—1952

Automatic chime and Christmas tree holder. George Eckhardt, Jr. **24**: 573—1952

Chime. Lowell M. Alexander. **24**: 809—1952

Church bell toller. Arthur C. J. Roy. **24**: 808—1952

Electric bell striking device. Clinton Meneely and Alf W. Miller. **24**: 809—1952

Electric bell tone generator mechanism. Jacob T. Kunz. **24**: 809—1952

Mounting for tuning forks. Dickran Sebouh. **24**: 348—1952

Musical instrument. Christopher C. Dargis. **24**: 108—1952

Musical instrument of the xylophone type. Harry Zimmerman **24**: 808—1952

Reed for electrical music instruments. Remy Joseph Marie Cecile Langloys. **24**: 809—1952

Resonant bar suspension apparatus. Paul Henry Rowe. **24**: 808—1952

Sound producing device. Raymond R. Rundell. **24**: 260—1952

Toy musical instrument. Harry Zimmerman. **24**: 808—1952

Tuning method for musical instruments. Jacob T. Kunz. **24**: 808—1952

Variable sound device. Raymond R. Rundell. **24**: 261—1952

6.3 Brass Wind Instruments (lip vibrated)

PATENTS

Acoustic measuring apparatus. John C. Webster. **24**: 573—1952

Dent remover with flexible shaft and vibrating means. Londell C. Forrest. **24**: 261—1952

Musical instrument mouthpiece. Samuel M. Wilder. **24**: 348—1952

Mute for musical instruments. John A. Altosino. **24**: 439—1952

Mute structure for musical instruments. William W. Rudd. **24**: 439—1952

6.4 Drums and Other Membraphonic Instruments

PATENTS

Appliance for musical instruments. William D. Gladstone. **24**: 810—1952

Drum. Robert W. Livingston. **24**: 810—1952

Drum beating mechanism. William F. Ludwig. **24**: 810—1952

Drumstick. Maurice Bramson. **24**: 809—1952

Kettle drum and timpani therefor. William F. Ludwig. **24**: 108—1952

Spur for bass drums. Francis Sikora. **24**: 108—1952

Strainer of drum snare tensioning mechanism. Cecil H. Strupe. **24**: 809—1952

Tone indicating mechanism for kettledrums. William F. Ludwig. **24**: 810—1952

6.5 Pipe Organs

PATENT

Air valve. Carl A. Crome. **24**: 810—1952

Combination stop mechanism. Raymond P. Mork. **24**: 439—1952

Organ pipe assembly. Charles W. McManis. **24**: 810—1952

Pipe organ. Arthur James Chase. **24**: 439—1952

BOOK REVIEW

The organ. William Leslie Sumner. **24**: 788—1952

6.6 Pianos and Other Keyboard Stringed Instruments

PAPER

Inharmonicity of plain wire piano strings. Robert W. Young. **24**: 267—1952

ABSTRACT
Inharmonicity of plain wire piano strings. Robert W. Young. 24: 455—1952

PATENT
Apparatus for production of music. Benjamin F. Miessner. 24: 810—1952
Electronic piano tuning. Clifford Andersen. 24: 108—1952
Key for musical instruments. William G. Appel. 24: 574—1952
Method of and apparatus for producing sound waves from vibrating strings. Donald Henry Pegrum. 24: 440—1952
Musical instrument keyboard. Harold A. Jewett and Nelson J. Jewett. 24: 261—1952
Piano action. Alexander P. Brown. 24: 109—1952
Piano action. Alexander P. Brown. 24: 109—1952
Piano action. Alexander P. Brown. 24: 109—1952
Piano action. Alexander P. Brown. 24: 109—1952
Piano action. William S. Finholm. 24: 108—1952
Piano action. William S. Finholm. 24: 574—1952
Piano action. Sylvan K. Ketterman. 24: 261—1952
Piano action. Louis Messant. 24: 573—1952
Piano action. Charles Frederick Stein. 24: 348—1952
Piano hammer press. James K. Booth. 24: 573—1952
Piano keyboard. John H. Reuther. 24: 349—1952
Piano keyboard regulator. Nicolas Krausz. 24: 574—1952
Piano playing device. Van Dyke Hill. 24: 573—1952
Piano resonating chamber. Herbert O. Crippen, Sr. 24: 573—1952
Piano sounding board construction. Edward J. Schneider. 24: 108—1952
Piano tuning pin. Henry E. Warren and Richard G. Warren. 24: 810—1952
Recording and playing piano music. Carl Worch. 24: 261—1952
Upright piano action. Armand F. Knoblaugh. 24: 261—1952
Upright piano action and pedal assembly. Humbert Thurston Scott-Huntington. 24: 574—1952
Vibrator-exciting action. Benjamin F. Miessner. 24: 108—1952
Vibrator-exciting action. Benjamin F. Miessner. 24: 108—1952

BOOK REVIEW
Pianos, pianists, and sonics. G. A. Briggs. 24: 91—1952

6.7 Violin Family. Stringed Instruments Except Keyboard Type

PATENTS
Adjustable guitar bridge. Sebastiano Melita. 24: 349—1952
Attachment for stringed musical instruments. Robert O. Adams. 24: 109—1952
Convertible electrical stringed musical instrument. Frederick J. Allen. 24: 109—1952
Finger stop for stringed instruments. Claude Rader. 24: 440—1952
Magnetic pick-up for stringed musical instruments. Theodore M. McCarty. 24: 262—1952
Magnetic pick-up unit for guitars. Gurnie E. Morrison. 24: 109—1952
Musical instrument. John W. McBride. 24: 349—1952
Musical instrument construction. George A. Finder. 24: 575—1952.
Pitch changing mechanism for stringed musical instruments. William N. Gaut. 24: 349—1952
Removable shoulder rest for violins. Markus Klein. 24: 575—1952
Robo-chord. Kermit A. Bowen. 24: 574—1952
Single string musical instrument. John A. Kalosy. 24: 574—1952.
Sound producing instrument and diaphragm therefor. Joseph E. Petek. 24: 349—1952
String holding key for musical instruments. George A. Finder. 24: 574—1952
String instrument. Otto E. Wolff. 24: 349—1952
Stringed musical instrument. Carol R. Kiley. 24: 810—1952
Stringed musical instrument. Mario Maccaferri. 24: 810——1952
Stringed musical instrument. John W. McBride. 24: 349—1952
Tailpiece for stringed instruments. Henric Victor Hogne. 24: 575—1952
Tailpiece for stringed musical instruments. John E. Kluson 24: 574—1952
Tuning head for stringed musical instruments. John E. Kluson. 24: 109—1952
Tuning peg for musical instruments. Barney R. Nyhagen. 24: 109—1952

6.8 Wood Winds

PAPER
Acoustical characteristics of jet-edge and jet-edge-resonator systems. W. L. Nyborg, M. D. Burkhard, and H. K. Schilling. 24: 293—1952

SUBTITLE
Edge tones. W. L. Nyborg, M. D. Burkhard, and H. K. Schilling. 24: 295—1952

PATENTS
G-sharp valve control mechanism for saxophones and the like. Earl J. Gillespie. 24: 110—1952
Method of making acoustic diaphragms. Joseph B. Brennan. 24: 810—1952
Protector for reeds on musical instruments. Frank T. Costello. 24: 109—1952

6.9 Electrical Musical Instruments

ABSTRACT
Electronic music box. E. L. Kent. 24: 116—1952

PATENTS
Apparatus for automatic production of music. John M. Hanert. 24: 111—1952
Cathodic coupling oscillator for electronic music instruments Georges Jenny. 24: 440—1952
Chime. Francis L. Dodd. 24: 575—1952
Combination bridge and pick-up assembly for string instruments. Clarence L. Fender. 24: 351—1952
Control system for electronic musical instruments. William C. Wayne, Jr. 24: 577—1952
Coupler system in electric musical instruments. Raymond P. Mork. 24: 350—1952
Device for creating oscillations. Octavio José Alvarez. 24: 111—1952
Device for forming sound records. Otto Wittel. 24: 577—1952
Dividing and amplifier circuit for electronic organs. Francis M. Schmidt. 24: 351—1952
Electric musical instrument. Bernardus Willem van Ingen Schenau. 24: 811—1952
Electric organ. Theodore R. Ellefson. 24: 263—1952
Electric organ. Victor I. Zuck. 24: 576—1952
Electric organ coupler assembly. Victor I. Zuck. 24: 263—1952
Electric organ speaker system. Donald J. Leslie. 24: 812—1952
Electric pick-up for vibrations. Louis A. Mass. 24: 811—1952
Electric switch. Arthur F. Evett. 24: 576—1952
Electrical musical instrument. Leslie Edwin Alexander Bourn. 24: 811—1952
Electrical musical instrument. Maurice Grudin. 24: 110—1952
Electrical musical instrument. John M. Hanert. 24: 111—1952
Electrical musical instrument. John M. Hanert. 24: 262—1952

Electrical musical instrument. John M. Hanert. **24:** 575—1952
Electrical musical instrument. John M. Hanert. **24:** 812—1952
Electrical musical instrument. John Michael Harrison. **24:** 812—1952
Electrical musical instrument. Merwin J. Larsen and Norman B. Erickson. **24:** 576—1952
Electrical musical instrument. Harold A. Vagtborg. **24:** 263—1952
Electrical musical instrument with tone sustaining means. John M. Hanert. **24:** 577—1952
Electrical musical instrument with vibratory strings. Constant Martin. **24:** 576—1952
Electrical pick-up for string instruments. Emile Grimshaw. **24:** 442—1952
Electronic carillon. Francis L. Dodd. **24:** 262—1952
Electronic device for sound reproduction of musical instruments. Frank T. Cooper. **24:** 575—1952
Electronic musical entertainment device. Larned A. Meacham. **24:** 262—1952
Electronic musical instrument. Don Pierre Louis Jean Emile Colombani. **24:** 811—1952
Electronic musical instrument. Constant Martin. **24:** 575—1952
Electronic musical instrument. Frederic D. Merrill, Jr. **24:** 350—1952
Electronic musical instruments. Thomas J. George. **24:** 110—1952
Electronic organ. Pulford J. Greaves and Frederic N. Elgear. **24:** 576—1952
Electronic organ. Albert M. Skellett. **24:** 110—1952
Electronic tone generator. Richard E. Williams. **24:** 577—1952
Electronic tremulant. Francis M. Schmidt. **24:** 263—1952
Electromagnetic reed unit for electrical musical instrument. Harold E. Rogers and John N. Magida. **24:** 350—1952
General assembly in electrical musical instrument. Alfred J. Bissonette. **24:** 264—1952
Generator for electric pulsations of audiofrequency. Edward M. Jones. **24:** 440—1952
Inductance tuned audiofrequency oscillator. John M. Hanert. **24:** 262—1952
Key switch mounting. Merwin J. Larsen. **24:** 350—1952
Keyboard electric musical instrument. Maurice Martenot. **24:** 441—1952
Keying device for electronic organs. Richard H. Campbell, Jr., and George H. Hadden. **24:** 812—1952
Marking strip. Victor I. Zuck. **24:** 264—1952
Method and means for producing tunes and voices photoelectrically. Edward M. Jones. **24:** 442—1952
Mounting for switch assemblies. Merwin J. Larsen. **24:** 441—1952
Movable tape condenser for electronic generators. Maurice Martenot. **24:** 812—1952
Musical instrument. James A. Koehl. **24:** 441—1952
Musical instrument. Merwin J. Larsen. **24:** 350—1952
Musical instrument employing continuously moving members. Armand F. Knoblaugh. **24:** 577—1952
Photoelectric musical instrument. Rollin E. Campbell. **24:** 351—1952
Pick-up for electric organs. Victor I. Zuck. **24:** 262—1952
Selective frequency sound reproducer of the sound on film type. William W. Phillips. **24:** 111—1952
Selective production of voices in electrical musical instruments. Armand F. Knoblaugh and John F. Jordan. **24:** 441—1952
Shutter mechanism. John F. Jordan. **24:** 440—1952
Sonic tube. George H. Marmont. **24:** 812—1952
Sound reproducing apparatus. Pierre P. Pattyn. **24:** 812—1952
Sound track carrier. William Punt. **24:** 111—1952
Switch for electrical musical instruments. Rudolph T. Bozak and Serge L. Krauss. **24:** 441—1952
System for making continuous sound records. John Hays Hammond, Jr. **24:** 264—1952
System for preventing transients in photoelectric musical instruments. Edward M. Jones. **24:** 441—1952
System for the production and use of electric oscillations for control purposes. Edward M. Jones and George F. Williamson. **24:** 442—1952
Tone control apparatus for electrical musical instruments. Herbert E. Meinema. **24:** 441—1952
Tone generator. Carl W. Larson. **24:** 811—1952
Tone producing and amplifier control for electronic organs. Francis M. Schmidt. **24:** 350—1952
Tone quality control circuit for electrical musical instruments. John M. Hanert. **24:** 576—1952.
Tone shaping circuit. Francis M. Schmidt. **24:** 350—1952
Translation system. Jack R. Zeckman. **24:** 110—1952
Tremolo switching circuits in electric musical instruments. John R. Van Wye. **24:** 111—1952
Typewriting machine attachment. Bartlett Edwards. **24:** 351—1952
Vibrato apparatus. Laurens Hammond and John M. Hanert. **24:** 440—1952
Vibrato apparatus for electrical musical instruments. John M. Hanert. **24:** 812—1952
Vibrato system. John F. Jordan. **24:** 263—1952

BOOK REVIEW

Electronic musical instruments, a bibliography. Tottenham Public Libraries and Museum. **24:** 420—1952

6.10 Reed Organs. Accordions, Harmonicas

PATENTS

Accordion. Richard E. Rieschick. **24:** 352—1952
Accordion. Richard R. Rieschick. **24:** 578—1952
Accordion microphone. Edward H. Terlinde. **24:** 442—1952
Accordion with reedless wind instruments. William Borzage. **24:** 813—1952
Harmonica. John R. Tate. **24:** 351—1952
Key assembly for musical instruments. Lord W. Halvorson. **24:** 577—1952
Microphone attachment for accordions. Louis Sorkin. **24:** 352—1952
Musical instrument. Joseph Gaukstern. **24:** 577—1952
Musical instrument. Walter F. Meyers. **24:** 352—1952
Musical instrument. Hugh M. Stephenson. **24:** 578—1952
Musical instrument apparatus. Victor Dal Degan. **24:** 577—1952
Organ. Sylvan M. Ketterman. **24:** 351—1952
Organ valve. Jacob C. Hallman. **24:** 813—1952
Playing key for accordions and the like. Frank Kostka. **24:** 352—1952
Reed instrument and method of manufacturing same. Charles E. Wetzler. **24:** 813—1952
Reed-mounting with metal tongues for musical instruments. René Seybold. **24:** 442—1952
Tone improving means for accordions. Marvin H. Pakman and Angelo J. Dellaira. **24:** 442—1952

7. Noise

7.1 General, Unclassified

PAPERS

Acoustic design of aircraft gas turbine test cells. R. O. Fehr, R. J. Wells, and T. L. Bray. **24:** 480—1952
Acoustical determinants of audiogenic seizures in laboratory mice. Hubert Frings and Mable Frings. **24:** 163—1952
National Noise Abatement Symposium in Chicago, October 10th. **24:** 546—1952

New types of ear protectors. Jozef Zwislocki. **24:** 762—1952
On plotting noise measurements. R. W. Young, and R. M. Sherwood. **24:** 541—1952(L.E.)
Techniques for valuation of noise reducing piping components. D. B. Callaway, F. G. Tyzzer, and H. C. Hardy. **24:** 725—1952
Tentative estimate of a hearing damage risk criterion for steady-state noise. Howard C. Hardy. **24:** 756—1952
Unsolved basic physical research problems in the field of noise. Howard C. Hardy. **24:** 767—1952
Unsolved military noise problems. Leo L. Beranek. **24:** 769—1952
Unsolved problems in the field of aircraft noise. R. O. Fehr. **24:** 772—1952
Use of binaural tape recording in automotive noise problems. David C. Apps. **24:** 660—1952

ABSTRACTS
Unsolved basic physical research problems in the field of noise. Howard C. Hardy. **24:** 449—1952(T)
Tentative criteria for noise control design. Walter Rosenblith, Leo L. Beranek, Richard H. Bolt, Robert B. Newman, Jordan J. Baruch, and Samuel Labate. **24:** 446—1952
Unsolved military noise problems. Leo Beranek. **24:** 449—1952(T)

7.2 Annoyance

ABSTRACT
Preliminary estimate of a hearing damage risk criterion for steady-state noise. Howard C. Hardy. **24:** 446—1952

7.3 Audiograms of Noise

PAPER
On plotting noise measurements. R. W. Young and R. M. Sherwood. **24:** 541—1952(L.E.)

7.5 Frequency Analyses of Noise

SUBTITLE
Power of jet engine noise in difference frequency bands. H. E. von Gierke, H. O. Parrack, W. J. Gannon, and R. G. Hansen. **24:** 171—1952

7.6 Noise in Buildings (see also 2.2)

ABSTRACTS
Instrumentation and techniques for evaluation of noise reducing components in piping systems. D. B. Callaway, F. G. Tyzzer, and H. C. Hardy. **24:** 117—1952
Noise control for eight- by six-foot supersonic wind tunnel. L. L. Beranek, S. Labate, R. H. Bolt, R. B. Newman, and U. Ingard. **24:** 447—1952
Some data on the performance of sound attenuating treatments. Samuel Labate. **24:** 447—1952

7.7 Machinery Noise. Mufflers. Noise Silencers

PAPERS
Acoustic design of aircraft gas turbine test cells. R. O. Fehr, R. J. Wells, and T. L. Bray. **24:** 480—1952
Acoustic properties of flying helmets. D. R. Wilkie. **24:** 191—1952
Design characteristics for noise control of jet engine test cells. Howard C. Hardy. **24:** 185—1952
Noise field of a turbo-jet engine. H. E. von Gierke, H. O. Parrack, W. J. Gannon, and R. G. Hansen. **24:** 169—1952
Techniques for valuation of noise reducing piping components. D. B. Callaway, F. G. Tyzzer, and H. C. Hardy. **24:** 725—1952

ABSTRACTS
Acoutsic design of aircraft gas turbine test cells. Robert O. Fehr and Richard J. Wells. **24:** 116—1952(T)
Aerodynamic noise and the estimation of noise in aircraft, O. R. Rogers and R. F. Cook. **24:** 446—1952
Aircraft engine noise problem. Richard H. Bolt. **24:** 116—1952(T)
Description of a new swaging machine silencer. Martin Hirschorn. **24:** 117—1952
Design characteristics for noise control of jet engine test cells. **24:** 116—1952(T)
Instrumentation and techniques for evaluation of noise reducing components in piping systems. D. B. Callaway, F. G. Tyzzer, and H. C. Hardy. **24:** 117—1952
Noise characteristics from axial flow compressors. Osman K. Mawardi. **24:** 446—1952
Noise control in aircraft engine testing. Richard D. Lemmerman. **24:** 116—1952
On the use of metallic noise isolation mounts. A. O. Sykes and Mark Harrison. **24:** 117—1952
Propagation of sound in a water spray muffler. Osman K. Mawardi and Conrad Hemond. **24:** 446—1952
Quieting of the jet engine testing facilities in the Willgoos Turbine Laboratory. S. M. Potter and H. C. Hardy. **24:** 116—1952
Turbo-jet engine noise. H. E. von Gierke, Horace O. Parrack, W. J. Gannon, and R. G. Hansen. **24:** 116—1952
Unsolved noise problems in the aircraft industry. Robert O. Fehr. **24:** 449—1952(T)
Use of binaural tape recording in automotive noise problems. David C. Apps. **24:** 446—1952
Useful theorem for the testing of isolation mounts. Mark Harrison and A. O. Sykes. **24:** 116—1952

SUBTITLES
Effect of damping material in reducing pipe-wall vibrations. D. B. Callaway, F. G. Tyzzer, and H. C. Hardy. **24:** 728—1952
Reduction in pipe-wall vibration levels by various types of commercial flexible couplings. D. B. Callaway, F. G. Tyzzer, and H. C. Hardy. **24:** 728—1952

PATENTS
Air-cooled exhaust muffler with frusto-conical body. Walton W. Cushman. **24:** 443—1952
Apparatus for silencing noise producing gases. Robert L. Hoyle. **24:** 352—1952
Baffle type exhaust silencer. Omer J. Rainville. **24:** 264—1952
Baffle type muffler with plural expansion chambers. Peter A. Lievense and Harry T. Phillips. **24:** 264—1952
Engine silencer with transverse baffle structure. Frank H. Kyffin. **24:** 813—1952
Muffler with frusto-conical baffle and removably disposed perforated extension tube. William D. Storey. **24:** 813—1952
Muffler with perforated cylinder containing inwardly and rearwardly inclined holes. Willard H. Engels. **24:** 443—1952
Muffler with plural passages and side branch chambers. Walter L. Briddlecombe. **24:** 352—1952
Muffler with plural side branch chambers. Howard R. Johnson. **24:** 352—1952
Muffler with tuned side branch silencing chambers. Edmund Ludlow. **24:** 442—1952
Muffling mechanism for compressor valves. Lars Hanson. **24:** 443—1952
Silencer with toroidal expansion chambers. J. Ford Johnston. **24:** 264—1952
Spark arrester mechanism. Walter H. Powers. **24:** 813—1952
Valve controlled silencer. Raymond C. Baird. **24:** 352—1952

8. Standards

8.1 General, Unclassified

PAPER
New acoustical terminology. **24:** 232—1952

BOOK REVIEW
American standard acoustical terminology. American Standards Association. **24:** 91—1952

9. Speech and Singing

9.1 General, Unclassified

PAPER

Fifth international congress of oto—rhino—laryngo—broncho—esophagology. **24**: 326—1952

PATENT

Harmonic amplitude selector for signaling systems. Henry E. Singleton. **24**: 578—1952

BOOK REVIEWS

Language and communication. George A. Miller. **24**: 233—1952

Motor phonetics, a study of speech movements in action. R. H. Stetson. **24**: 329—1952

9.3 Articulation Testing. Intelligibility. Defective Speech

PAPERS

Automatic recognition of spoken digits. K. H. Davis, R. Biddulph, and S. Balashek. **24**: 637—1952

On the effect of frequency and amplitude distortion on the intelligibility of speech in noise. Irwin Pollack. **24**: 538—1952

On the process of speech perception. J. C. R. Licklider. **24**: 590—1952

Perception of speech sounds by deafened persons. Harvey Fletcher. **24**: 490—1952

Some experiments on the perception of synthetic speech sounds. Franklin S. Cooper, Pierre C. Delattre, Alvin M. Liberman, John M. Borst, and Louis J. Gerstman. **24**: 597—1952

ABSTRACTS

Effects of various types of nonlinear distortion upon the intelligibility of speech. J. C. R. Licklider and Richard Held. **24**: 114—1952

Perception of speech by deafened listeners and its relation to the design of hearing aids. Harvey Fletcher. **24**: 448 1952

Study of one factor in the perception of the unvoiced stop consonants. Alvin M. Liberman, Pierre Delattre, and Franklin S. Cooper. 24: 114—1952

9.4 Frequency of Occurrence of Speech Sounds

PARER

Experimental study of speech-wave probability distributions. Wilbur B. Davenport, Jr. **24**: 390—1952

9.5 Frequency Analysis of Speech Sounds

PAPER

Control methods used in a study of the vowels. Gordon E. Peterson and Harold L. Barney. **24**: 175—1952

ABSTRACT

Perception of vowel formants. K. N. Stevens. **24**: 450—1952

SUBTITLE

Fundamental and formant frequencies and formant amplitudes of vowels. Gordon E. Peterson and Harold L. Barney. **24**: 183—1952

9.6 Instruments Relating to Speech and Singing

PAPERS

Automatic recognition of spoken digits. K. H. Davis, R. Biddulph, and S. Balashek. **24**: 637—1952

Dynamic spectrograms of speech. W. E. Kock and R. L. Miller. **24**: 783—1952(L.E.)

Problem of selective voice control. Winston E. Kock. **24**: 625—1952

Some experiments on the perception of synthetic speech sounds. Franklin S. Cooper, Pierre C. Delattre, Alvin M. Liberman, John M. Borst, and Louis J. Gerstman. **24**: 597—1952

ABSTRACTS

Method for studying speech communication systems. E. L. R. Corliss. **24**: 449—1952

Observations on the acoustic impedance of calibrating couplers and ears. Mahlon D. Burkhard and E. L. R. Corliss. **24**: 114—1952

PATENTS

Instrument for cultivation of voice. David Baxter. **24**: 578—1952

Reading aid for the blind. Leslie E. Flory. **24**: 578—1952

9.8 Speech Power. Singing Voice Power

PAPERS

Experimental study of speech-wave probability distributions. Wilbur B. Davenport, Jr. **24**: 390—1952

On the measurement of the loudness of speech. Irwin Pollack. **23**: 323—1952(L.E.)

SUBTITLE

Fundamental and formant frequencies and formant amplitudes of vowels. Gordon E. Peterson and Harold L. Barney. **24**: 183—1952

9.10 Phonetics

Information bearing elements of speech. Gordon E. Peterson. **24**: 629—1952

PAPERS

Control tower language. F. C. Frick and W. H. Sumby. **24**: 595—1952

On the process of speech perception. J. C. R. Licklider. **24**: 590—1952

Operational phonemics in reference to linguistic relativity Kenneth L. Pike. **24**: 618—1952

Phonemes and allophones in speech analysis. W. F. Twaddell. **24**: 607—1952

Phonetic basis for identification of phonemic elements Eli Fischer-Jørgensen. **24**: 611—1952

PATENTS

Electroacoustic apparatus. Jean Albert Dreyfus. **24**: 578—1952

Sound printing mechanism. Jean Albert Dreyfus. **24**: 579—1952

BOOK REVIEW

Motor phonetics, a study of speech movements in action. R. H. Stetson. **24**: 329—1952

10. Ultrasonics [Supersonics]

10.1 General, Unclassified

PAPERS

New method for the visualization and measurement of ultrasonic fields. G. S. Bennett. **24**: 470—1952

New methods of ultrasonoscopy and ultrasonography. Paul J. Ernst and Charles W. Hoffman. **24**: 87—1952(L.E.)

New methods of ultrasonoscopy and ultrasonography. Paul J. Ernst and Charles W. Hoffman. **24**: 207—1952

ABSTRACTS

New methods of indirect ultrasonoscopy and ultrasonography. Paul J. Ernst and Charles W. Hoffman. **24**: 113—1952

On the failure of plane wave theory to predict the reflection of a narrow ultrasonic beam from a plane surface. M. S. Weinstein. **24**: 118—1952

BOOK REVIEW

Ultrasonic physics. E. G. Richardson. **24**: 520—1952

10.3 Ultrasonic Instruments (see also 5.18)

PAPERS

Effectiveness of plastic focusing lenses with high intensity ultrasonic radiation. Joseph A. Bronzo and John Maxwell Anderson. **24**: 718—1952

Natural vibrations of rectangular quartz plates and determination of the dispersion of sound in ethyl ether. Belkis Özdoğan. **24**: 541—1952(L.E.)

New method for the visualization and measurement of ultrasonic fields. G. S. Bennett. **24**: 470—1952

New photographic method of detecting ultrasonic radiation. L. Pétermann. **24**: 416—1952

On the theory of the fixed path acoustic interferometer. F. E. Borgnis. **24**: 19—1952

Precise recording ultrasonic interferometer and its application to dispersion tests in liquids. Romard Barthel and A. W. Nolle. **24**: 8—1952
Recording ultrasonic interferometer and its alignment. James L. Stewart and Ellen S. Stewart. **24**: 22—1952
Use of glass parts in ultrasonic interferometers. Robert T. Lagemann. **24**: 86—1952(L.E.)

ABSTRACTS

Automatic ultrasonic flaw plotting. Donald C. Erdman. **24**: 113—1952
Diffraction and reflection as sources of error in ultrasonic measurements. J. C. Hubbard. **24**: 458—1952
High frequency, wide range acoustic interferometer for biological work. J. R. Richards and D. E. Goldman. **24**: 113—1952
Measurement of the shear impedance of viscous liquids by means of traveling torsional waves. H. J. McSkimin. **24**: 117—1952
Measurement of the ultrasonic absorption coefficient by a modified radiation pressure method. F. L. McNamara and R. T. Beyer. **24**: 453—1952
Some design considerations for high frequency anechoic tanks. M. S. Weinstein. **24**: 455—1952
Surface vibration patterns of ultrasonic radiators. III. John D. Nixon, Richard A. Rhodes II, and A. O. Williams, Jr. **24**: 457—1952

SUBTITLES

Remark on the variable path interferometer. F. E. Borgnis. **24**: 21—1952
Torsional wave transducer. H. J. McSkimin. **24**: 356—1952

PATENTS

Apparatus for inspecting materials by wave trains. Ralph B. De Lano, Jr. **24**: 264—1952
Apparatus for producing waves in fluid media. Francis Weldon Crawford and John S. Kirby-Smith. **24**: 265—1952
Echo pulse system utilizing the first-received echo for control purposes. Merwin J. Larsen. **24**: 443—1952
Electroacoustic transducer. Frank H. Slaymaker. **24**: 264—1952
Focused electromechanical device. Alfred L. W. Williams. **24**: 352—1952
Inspecting solid parts by supersonic shear waves. Floyd A. Firestone. **24**: 813—1952
Lens system for ultrasonic viewing of defects in objects. Ross E. Williams. **24**: 814—1952
Magnetostrictive device. Francis George Firth. **24**: 353—1952
Mechanical impedance transformer. Warren P. Mason and Ronald F. Wick. **24**: 443—1952
Method and means for phase and frequency modulation. Georges Charles Ahier and Paul Buffet. **24**: 443—1952
Method of supersonic inspection. Floyd A. Firestone. **24**: 813—1952
Supersonic agitation. Benson Carlin. **24**: 443—1952
Supersonic inspection for flaws lying near the surface of a part. Julian R. Frederick and Floyd A. Firestone. **24**: 353—1952
Supersonic whistle for code communication. Richard C. Willman. **24**: 353—1952
Ultrasonic distance-measuring system. Frank H. Slaymaker. **24**: 443—1952
Ultrasonic flaw detector. Donald C. Erdman. **24**: 579—1952
Ultrasonic generator. Eliot Huntington Harris. **24**: 579—1952
Ultrasonic materials testing. Howard E. Van Valkenburg and Moe S. Wasserman. **24**: 813—1952

BOOK REVIEW

Air-jet generator as a means for setting up waves in a liquid medium. Jul. Hartmann and F. Larris. **24**: 233—1952
Synchronization of air-jet generators, with an appendix on the stem generator. Jul. Hartmann and Erik Trudso. **24**: 233—1952

10.4 Gases, Ultrasonic Velocities, Dispersion, and Absorption (see also 11.3)

PAPERS

Absorption and dispersion of sound in oxygen as a function of the frequency-pressure ratio. William John Thaler. **24**: 15—1952
Acoustic relaxation in a van der Waals gas. Robert T. Beyer. **24**: 714—1952
Natural vibrations of rectangular quartz plates and determination of the dispersion of sound in ethyl ether. Belkis Özdoğan. **24**: 541—1952(L.E.)
Rotational dispersion in the velocity, attenuation, and reflection of ultrasonic waves in hydrogen and deuterium. Ellen S. Stewart and James L. Stewart. **24**: 194—1952
Translational dispersion in monatomic gases. Robert A. Boyer. **24**: 716—1952
Ultrasonic velocity, dispersion, and absorption in dry, CO_2-free air. C. Ener, A. F. Gabrysh, and J. C. Hubbard. **24**: 474—1952

ABSTRACTS

Absorption of sound in argon, nitrogen, and oxygen at low pressures. J. G. Parker and R. M. Stavseth. **24**: 456—1952
Ultrasonic propagation in dry CO_2-free air. C. Ener and J. C. Hubbard. **24**: 458—1952

SUBTITLE

Sound velocities and absorption in a van der Waals gas for CO_2, COS, CS_2, N_2O, SO_2. Robert T. Beyer. **24**: 714—1952
Velocity and attenuation of sound in helium. James L. Stewart and Ellen S. Stewart. **24**: 25—1952

10.5 Liquids, Ultrasonic Velocities, Dispersion, and Absorption (see also 13.2 and 13.3)

PAPERS

Attenuation of sound resulting from ionic relaxation. L. H. Hall. **24**: 704—1952
Experimental investigations on the origin of the anomalous absorption of ultrasonic waves in liquids. Yasaku Wada and Sotoshi Shimbo. **24**: 199—1952
Measurement of dynamic shear viscosity and stiffness of viscous liquids by means of traveling torsional waves. H. J. McSkimin. **24**: 355—1952
On sound propagation in $MgSO_4$ solutions. Romard Barthel. **24**: 313—1952
Precise recording ultrasonic interferometer and its application to dispersion tests in liquids. Romard Barthel and A. W. Nolle. **24**: 8—1952

ABSTRACTS

Gaseous cavitation in liquids. M. D. Rosenberg. **24**: 454—1952
Measurement of colloidal vibration potentials with pulse-modulated ultrasonic waves. Ernest Yeater, Harry Dietrick, Frank Saunders, and Frank Hovorka. **24**: 117—1952
Measurement of the shear impedance of viscous liquids by means of traveling torsional waves. H. J. McSkimin. **24**: 117—1952
Ultrasonic absorption in acetate solutions. R. E. Barrett, M. W. Dill, R. T. Beyer, and F. L. McNamara. **24**: 453—1952

SUBTITLES

Correlation between absorption of ultrasonic waves and infrared radiations in liquids. Yasaku Wada and Sotoshi Shimbo. **24**: 201—1952
Decrease of absorption of benzene by the addition of other liquids. Yasaku Wada and Sotoshi Shimbo. **24**: 200—1952
Molecular absorption in highly viscous liquids. Yasaku Wada and Sotoshi Shimbo. **24**: 201—1952
Torsional waves with a rod and radiation into a liquid in which it is immersed. H. J. McSkimin. **24**: 363—1952

Velocity and attenuation in polyisoprene, polybutadiene, polypropylene, and polypropylene sebacate. H. J. McSkimin. **24**: 361—1952

10.6 Solids, Ultrasonic Velocities, Dispersion, and Absorption

PAPERS

On the failure of plane wave theory to predict the reflection of a narrow ultrasonic beam. Marvin S. Weinstein. **24**: 284—1952

Spherical wave propagation in solid media. F. G. Blake, Jr. **24**: 211—1952

Transmission of ultrasonic waves through a thin solid plate at the critical angle for the dilatational wave. K. Rachel Makinson. **24**: 202—1952

ABSTRACTS

Automatic ultrasonic flaw plotting. Donald C. Erdman. **24**: 113—1952

Spherical wave radiation in solid media. F. G. Blaker, Jr. **24**: 119—1952

Transmission of sound through thin plates. J. E. Young and R. H. Bolt. **24**: 119—1952(T)

SUBTITLE

Velocities in steel, brass, and alloys. H. J. McSkimin. **24**: 360—1952

10.7 Physical Effects of Ultrasonic Waves

PAPERS

New method for the visualization and measurement of ultrasonic fields. G. S. Bennett. **24**: 470—1952

New methods of ultrasonoscopy and ultrasonography. Paul J. Ernst and Charles W. Hoffman. **24**: 87—1952(L.E.)

New methods of ultrasonoscopy and ultrasonography. Paul J. Ernst and Charles W. Hoffman. **24**: 207—1952

New photographic method of detecting ultrasonic radiation. L. Pétermann. **24**: 416—1952(L.E.)

ABSTRACTS

Gaseous cavitation in liquids. M. D. Rosenberg. **24**: 454—1952

Ultrasonically induced cavitation in water. G. W. Willard. **24**: 454—1952

10.8 Chemical Effects of Ultrasonic Waves

PAPERS

New methods of ultrasonoscopy and ultrasonography. Paul J. Ernst and Charles W. Hoffman. **24**: 87—1952(L.E.)

New methods of ultrasonoscopy and ultrasonography. Paul J. Ernst and Charles W. Hoffman. **24**: 207—1952

10.9 Biological Effects of Ultrasonic Waves

PAPERS

Acoustical determinants of audiogenic seizures in laboratory mice. Hubert Frings and Mable Frings. **24**: 163—1952

Apparatus for ultrasonic treatment of liquids. Bloyce D. Fitzgerald. **24**: 579—1952

ABSTRACT

Resonant effects of mammalian erythrocytes in ultrasonic fields. Eugene Ackerman. **24**: 118—1952

PATENT

Method of accelerating the growth of micro-organisms. Ralph F. Shropshire. **24**: 443—1952

***11. Waves and Vibrations* (*see also 13*)**

11.1 General, Unclassified

PAPERS

ASME Symposium on shock and vibration instrumentation planned for 1952. **24**: 326—1952

Atomspheric winds and temperatures to 50-kilometers altitude as determined by acoustical propagation studies. John M. Richardson and William B. Kennedy. **24**: 731—1952

Duality in mechanics. P. Le Corbeiller and Ying-Wa Yeung. **24**: 643—1952

Mechanical shock tester for instruments and electronic apparatus. Charles T. Morrow. **24**: 26—1952

Vibrations of evaporating liquid drops. Norman J. Holter and Wilford R. Glasscock. **24**: 682—1952

ABSTRACT

Duality in mechanics. P. Le Corbeiller and Ying-Wa Yeung. **24**: 451—1952

BOOK REVIEW

Fourier transforms. Ian N. Sneddon. **24**: 328—1952

11.2 Diffraction. Interference. Scattering. Reflection Echoes. Standing Waves

PAPERS

Acoustic radiation pressure of plane-compressional waves at oblique incidence. F. E. Borgnis. **24**: 468—1952

Multiple scattering of radiation by an arbitrary configuration of parallel cylinders. Vic Twersky. **24**: 42—1952

On acoustic diffraction cross sections for oblique incidence. John W. Miles. **24**: 324—1952(L.E.)

On the failure of plane wave theory to predict the reflection of a narrow ultrasonic beam. Marvin S. Weinstein. **24**: 284—1952

Reflection of a pulse by a concave paraboloid. D. V. Anderson. **24**: 324—1952(L.E.)

Reflection of a pulse by a spherical surface. D. V. Anderson, T. D. Northwood, and C. Barnes. **24**: 276—1952

Sound scattering by thin elastic shells. Miguel C. Junger. **24**: 366—1952

ABSTRACTS

Multiple scattering by two parallel cylinders. Vic Twersky. **24**, 119—1952

On the failure of plane wave theory to predict the reflection of a narrow ultrasonic beam from a plane surface. M. S. Weinstein. **24**: 118—1952

Reflection from an inhomogeneous medium. G. S. Heller. **24**: 118—1952

Reflection from irregular surfaces. F. Mansfield Young. **24**: 451—1952

Sound scattering by thin elastic shells. Miguel C. Junger. **24**: 455—1952

Sound scattering by fluid cylinders. Ira Dyer. **24**: 454—1952

SUBTITLES

Reflection of a pulse from a concave hemispherical reflector. D. V. Anderson, T. D. Northwood, and C. Barnes. **24**: 282—1952

Scattering by cylindrical shells. Miguel C. Junger. **24**: 367—1952

Scattering by spherical shells. Miguel C. Junger. **24**: 369—1952

11.3 Propagation of Sound. Absorption during Propagation. Velocity of Sound. Refraction. Wavelength. Doppler Effect (see also 10.4, 10.5, 10.6, 13.2, and 13.3)

PAPERS

Acoustic propagation in granular media. R. W. Morse **24**: 696—1952

Atmospheric winds and temperatures to 50-kilometers altitude as determined by acoustical propagation studies. John M. Richardson and William B. Kennedy. **24**: 731—1952

Mechanism of acoustic absorption in tissues. William J. Fry. **24**: 412—1952

Spherical wave propagation in solid media. F. G. Blake, Jr. **24**: 211—1952

Systematic errors in indirect measurements of the velocity of sound. P. W. Smith, Jr. **24**: 687—1952

Temperature-sensing and/or sound velocity-measuring device. Richard S. Cesaro and Herbert B. Harris. **24**: 579—1952

ABSTRACTS

Construction of apparatus for measuring the velocity of sound in gas mixtures. James Woodburn. **24**: 456—1952

Intensity fluctuations of radiation propagated in a randomly-inhomogeneous medium. David Mintzer. **24**: 457—1952
On the propagation of acoustic discontinuities in a moving inhomogeneous fluid. G. S. Heller. **24**: 456—1952
Precise measurement of the velocity of sound. P. W. Smith, Jr. **24**: 455—1952
Propagation of sound through solids. A. London, A. W. Orlacchio, R. L. Bach, and D. Epstein. **24**: 453—1952
Pulse propagation in a nonhomogeneous medium. W. W. Garvin. **24**: 119—1952
Sound propagation in granular media. R. W. Morse. **24**: 456—1952
Transmission of sound through thin cylindrical pipe walls. R. H. Bolt, J. E. Young, and H. C. Lang. **24**: 451—1952
Ultrasonic attenuation in human skull bone. T. F. Hueter, H. T. Ballantine, Jr., and D. Kyrazis. **24**: 449—1952
Use of a differential phase-delay method for study of ultrasonic-wave propagation in swollen rubberlike materials. A. W. Nolle and J. F. Mifsud. **24**: 118—1952
Wave propagation in liquid-filled cylinders. R. D. Fay. **24**: 454—1952

SUBTITLE

Correlation of impedance for cylindrical waves to impedance for plane waves. H. J. McSkimin. **24**: 357—1952

PATENT

Acoustic chamber for analysis of gaseous mixtures. William H. Janssen and Walter Mikelson. **24**: 353—1952

11.4 Radiation from Vibrating Objects. Acoustical Impedance, Mechanical Impedance (see also 5.3 and 13.7)

PAPERS

Design of optimum directional acoustic arrays. N. Davids, E. G. Thurston, and R. E. Mueser. **24**: 50—1952
Directionality patterns for acoustic radiation from a source on a rigid cylinder. Donald T. Laird and Hirsh Cohen. **24**: 46—1952
Exact solution of the acoustical field near a circular transducer. E. W. Guptill. **24**: 784—1952(L.E.)
More rapidly-convergent expansion for the velocity potential of a piston source. Harold Elrod, Jr. **24**: 325—1952(L.E.)
Natural vibrations of rectangular quartz plates and determination of the dispersion of sound in ethyl ether. Belkis Özdoğan. **24**: 541—1952(L.E.)
New expansion for the velocity potential of a piston source. A. H. Carter and A. O. Williams, Jr. **24**: 230—1952(L.E.)
Radiation impedance of a rigid square piston in an infinite baffle. George W. Swenson, Jr., and Wallace E. Johnson. **24**: 84—1952(L.E.)
Radiation loading of a piston source in a finite circular baffle. Robert B. Watson. **24**: 225—1952
Radiation loading of cylindrical and spherical surfaces. Miguel C. Junger. **24**: 288—1952
Remarks on a paper entitled "Calculation of the directivity index for various types of radiators." H. Stenzel. **24**: 417—1952(L.E.)
Sound field from a pulsating sphere and the development of a tail in pulse propagation. C. Barnes and D. V. Anderson. **24**: 229—1952(L.E.)
Spherical wave propagation in solid media. F. G. Blake, Jr. **24**: 211—1952

ABSTRACTS

Radiation loading of a rigid piston source in a finite baffle. Robert B. Watson. **24**: 119—1952
Spherical wave radiation in solid media. F. G. Blake, Jr. **24**: 119—1952

SUBTITLES

Directivity patterns of arrays. N. Davids, E. G. Thurston, and R. E. Mueser. **24**: 54—1952
Torsional waves within a rod and radiation into a liquid in which it is immersed. H. J. McSkimin. **24**: 363—1952

11.5 Sounds of Finite Amplitude. Distortion

ABSTRACTS

Acoustic instrumentation for high intensities. R. W. Leonard and I. Rudnick. **24**: 451—1952
Attenuation of repeated shock waves. Isadore Rudnick and Robert W. Leonard. **24**: 456—1952
On the propagation of acoustic discontinuities in a moving inhomogeneous fluid. G. S. Heller. **24**: 456—1952
Steady torques and streaming associated with crossed plane waves. Wesley L. Nyborg. **24**: 119—1952

11.6 Sound in Tubes

PAPERS

Dependence of *pfeifenton* (pipe tone) frequency on pipe length, orifice diameter, and gas discharge pressure. A. B. C. Anderson. **24**: 675—1952
Investigation of sound vibrations in a tube containing a heat source. Joseph L. Neuringer and George E. Hudson. **24**: 667—1952
Multiple Helmholtz resonators. C. S. McGinnis and V. F. Albert. **24**: 374—1952
Periodic fluid flow through circular tubes. George B. Thurston. **24**: 653—1952
Systematic errors in indirect measurements of the velocity of sound. P. W. Smith, Jr. **24**: 687—1952
Waves in liquid-filled cylinders. R. D. Fay. **24**: 459—1952

ABSTRACTS

Some data on the performance of sound attenuating treatments. Samuel Labate. **24**: 447—1952

PATENT

Sonic generator. Caperton B. Horsely and Gordon C. Seavey. **24**: 112—1952

11.6.1 Sources of Sound (see also 7.8 and 11.4)

PAPERS

Acoustical characteristics of jet-edge and jet-edge-resonator systems. W. L. Nyborg, M. D. Burkhard, and H. K. Schilling. **24**: 293—1952
Dependence of *pfeifenton* (pipe tone) frequency on pipe length, orifice diameter, and gas discharge pressure. A. B. C. Anderson. **24**: 675—1952
Vibrations of evaporating liquid drops. Norman J. Holter and Wilford R. Glasscock. **24**: 682—1952

ABSTRACT

Self-excited hydrodynamic oscillators. John Bouyoucos. **24**: 454—1952

SUBTITLE

Edge tones. W. L. Nyborg, M. D. Burkhard, and H. K. Schilling. **24**: 295—1952

11.7 Theory of Waves and Vibrating Systems (see also 5.4)

PAPERS

Axially symmetric vibrations of a finite isotropic disk. I. Ram Ratan Aggarwal. **24**: 463—1952
Axially symmetric vibrations of a finite isotropic disk. II. Ram Ratan Aggarwal. **24**: 663—1952
Duality in mechanics. P. Le Corbeiller and Ying-Wa Yeung. **24**: 643—1952
Free vibrations of a gas contained within a spherical vessel. Horace G. Ferris. **24**: 57—1952
Inharmonicity of plain wire piano strings. Robert W. Young. **24**: 267—1952
Modes of vibration of a semi-flexible rod under tension. Ray W. Kenworthy and Vernon A. Jennings. **24**: 60—1952
Multiple Helmholtz resonators. C. S. McGinnis and V. F. Albert. **24**: 374—1952
Transverse vibrations of uniform thin bars. Ralph Heller. **24**: 273—1952

Vibrations of evaporating liquid drops. Norman J. Holter and Wilford R. Glasscock. **24**: 682—1952
Wave effects in isolation mounts. Mark Harrison, Alan O. Sykes, and M. Martin. **24**: 62—1952
Waves in liquid-filled cylinders. R. D. Fay. **24**: 459—1952

ABSTRACTS

Axially symmetrical vibrations of a finite isotropic disk. R. R. Aggarwal. **24**: 455—1952
Duality in mechanics. P. Le Corbeiller and Ying-Wa Yeung. **24**: 451—1952
Inharmonicity of plain wire piano strings. Robert W. Young. **24**: 455—1952
Modes of vibration of semi-flexible rod under tension. Ray W. Kenworthy and Vernon A. Jennings. **24**: 118—1952
Resonance in barium titanate tubes. James F. Haskins. **24**: 117—1952
Solutions of the generalized eikonal equation for moving fluids. E. T. Kornhauser. **24**: 456—1952
Some vibration patterns of thick barium titanate disks. E. A. G. Shaw. **24**: 457—1952
Useful theorem for the testing of isolation mounts. Mark Harrison and A. O. Sykes. **24**: 116—1952

PATENT

Magnetostriction device. Leslie L. Burns, Jr. **24**: 353—1952

BOOK REVIEWS

Fourier transforms. Ian N. Sneddon. **24**: 328—1952
Wave motion and sound. R. W. B. Stephens and A. E. Bate. **24**: 328—1952

12. (Changed to Section 0)

13. Underwater Sound

13.2 Propagation of Sound in Water. Attenuation. Fluctuation

PAPER

Attenuation of sound in water containing air bubbles. Donald T. Laird and Paul M. Kendig. **24**: 29—1952

ABSTRACT

Sound propagation in granular media. R. W. Morse. **24**: 456—1952

PATENT

Method of sound transmission. William Maurice Ewing. **24**: 444—1952

13.3 Velocity of Sound in Water. Refraction. Doppler Effect

SUBTITLE

Velocity of sound in water. Romard Barthel and A. W. Nolle. **24**: 14—1952

13.4 Reflection. Echoes. Structures for Absorbing Sound in Water

PAPER

On the failure of plane wave theory to predict the reflection of a narrow ultrasonic beam. Marvin S. Weinstein. **24**: 284—1952

ABSTRACT

Experimental study of sound reflection from a river bottom. R. J. Urick. **24**: 455—1952

13.6 Scattering. Reverberation in Water

PAPER

Theoretical model for sound scattering by marine crustaceans. Stefan Machlup. **24**: 290—1952

13.8 Sound Generation by Fluid Motion, Bubbles, Turbulence, or Cavitation

PAPER

Thermal-noise limit in the detection of underwater acoustic signals. Robert H. Mellen. **24**: 478—1952

13.9 Noise in Water. Ship Noise. Biological Noises

PAPERS

Acoustical energy generated by the ocean waves. Fred B. Daniels. **24**: 83—1952(L.E.)
Thermal-noise limit in the detection of underwater acoustic signals. Robert H. Mellen. **24**: 478—1952

ABSTRACTS

Experimental study of single bubble cavitation noise. Mark Harrison. **24**: 454—1952
Some sounds from marine life in the Hawaiian area. O. W. Schreiber. **24**: 116—1952

13.10 Sounds of Finite Amplitude in Water. Explosions. Distortion. Cavitation

PATENT

Seismic surveying. Josephus Overton Parr, Jr. **24**: 444—1952

13.11 Instruments Relating to Underwater Sound. General

PAPER

Frequency response of barium titanate transducers. T. F. Hueter and E. Dozois. **24**: 85—1952(L.E.)

ABSTRACTS

Accurate prediction of resonant frequency of water loaded transducers. Donald H. Robey. **24**: 113—1952
Self-excited hydrodynamic oscillators. John Bouyoucos. **24**: 454—1952
Variable resonant frequency crystal transducer. Donald H. Robey. **24**: 113—1952

PATENTS

Apparatus for measurement of time intervals between pulses. Leighton L. Morse. **24**: 265—1952
Apparatus for producing artificial crystals. George E. Merritt. **24**: 265—1952
Pressure responsive transducer. Clifford Frondel. **24**: 265—1952

BOOK REVIEW

Air-jet generator as a means for setting up waves in a liquid medium. Jul. Hartmann and F. Larris. **24**: 233—1952

13.11n Navigational Instruments Using Underwater Sound. Underwater Listening and Echo Ranging Devices. Sonar

PATENTS

Adjustable contact structure for periodic switches. Donald O. Nelson. **24**: 353—1952
Distance measurement by echo ranging. Robert B. Moran, Jr. **24**: 354—1952
Distance measuring system. Laurence Batchelder. **24**: 444—1952
Distance measuring system. Robert A. Fryklund. **24**: 265—1952
Echo distance measuring circuit. James L. Russell. **24**: 444—1952
Echo ranging system. Robert A. Fryklund. **24**: 266—1952
Electric impulse handling system. Edwin E. Turner, Jr. **24**: 266—1952
Electric motor speed control system. Edwin E. Turner, Jr. **24**: 579—1952
Listening amplifier. Russell O. Hanson. **24**: 266—1952
Recorder drive mechanism. Cecil E. Walton. **24**: 354—1952
Recording and indicating system. Brownlee B. Gauld. **24**: 444—1952
Reverberation control of gain. Jarrett Lewis Hathaway. **24**: 444—1952
Reverberation control of gain. Paul B. Sebring. **24**: 266—1952
Stylus structure for electrical recorders. Hamilton Alan Stamper. **24**: 353—1952
Supersonic apparatus. Harvey C. Hayes. **24**: 266—1952
Underwater signaling device. Charles F. Bowersett, Kenneth L. Baker, and Carl A. Axelson. **24**: 353—1952
Underwater sound system. Oscar E. Dudley. **24**: 444—1952

31.11t Transducers for Underwater Sound. Transducer Calibration (see also 5.18)

ABSTRACTS

Performance characteristics underwater of plane arrays of barium titanate transducers. Leon Camp. **24**: 450—1952

PATENTS

Electroacoustic transducer. Elias Klein. **24**: 814—1952

Electromagnetic underwater sound projector and receiver. Harvey C. Hayes and Prescott N. Arnold. **24**: 112—1952

Hydrophone mounting. Laurence Batchelder. **24**: 112—1952

Magnetostriction transducer. Leon W. Camp. **24**: 112—1952

Rubber dome for underwater sound. James W. Fitzgerald. **24**: 445—1952

Submarine compressional wave receptive apparatus. Horace M. Trent. **24**: 445—1952

Submarine signaling device. Irad S. Rafuse. **24**: 580—1952

Underwater microphone. James M. Kendall. **24**: 445—1952

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